The Manufacturing and Construction Journal of the Textile Industry

COTTON

Entered as second-class matter at the postoffice, Dalton, Ga., under Act of March 3, 1879.

Volume 90.
Number 11.
$1.00 a Year.

SEPTEMBER, 1926

Published monthly by
W. R. C. Smith Publishing Co.
Dalton and Atlanta, Ga.

RHOADS LEATHER BELTING
SEVEN years ago a southern cotton mill bought Watershed Tannate Belts for their looms. They recently reported these belts in excellent condition and showing no signs of wear. They are well pleased with the evident durability of Tannate.
But "long life" is not its only good point. The strong grip of Tannate assures steady, even running of your textile machines, often resulting in a marked increase in output.
When you want results in belting for your exacting drives and larger belts always specify Tannate.
On your lighter drives, four inches or less in width, you will find satisfaction and economy in using Rhoads Stronghold Belting. It is a side leather belt of the Tannate tannage and has the Tannate grip.
J. E. RHOADS & SONS
Philadelphia, 29 N. Sixth St.
New York, 96 Beekman St.
Atlanta, 67 S. Forsyth St.
Chicago, 316 W. Randolph St.
Cleveland, 1206 W. Ninth St.
FACTORY AND TANNERY, WILMINGTON, DEL.
J.E.Rhoads & Sons

Table of Contents, Page 53. Buyers' Index, Page 186 Advertisers' Index, Page 198

They Washed a Sock 21 Times

without washing out their trademark

[Based on an interview with Mr. J. A. MORGAN, of the BROWN DURRELL CO.]

TO TEST out the durability of the trademark on Gordon Hosiery, Mr. J. A. Morgan of the Brown Durrell Company kept a record of one pair of socks worn by his little daughter. Back and forth to the laundry this pair of socks went—21 trips in all.

When holes appeared, the socks were darned, then worn and washed again. But after the 21 washings the little Gordon Hosiery trademark on the toe was still quite as legible as when the sock came out of the box brand new. Even 21 washings had failed to wear out the mark!

But the Brown Durrell Co., makers of Gordon Hosiery did not always enjoy such satisfaction with the permanence of its markings. In fact applying this trademark used to be one of their urgent problems, when they used to stamp their trademark on hosiery with a wet transfer.

For the mark quickly rubbed off and disappeared. After one washing it was usually impossible to identify the brand as Gordon Hosiery.

And Brown Durrell Co. rightly felt that as a result they were losing a valuable tie up with their advertising efforts.

Water Spotting now prevented

But besides the lack of durability the wet transfers were far from satisfactory in many other respects. They caused frequent water spotting. They damaged hosiery. Literally gallons of cleaning fluid had to be used to sponge wet goods. It was a nuisance and an expense.

But about two or three years ago, Brown Durrell was emancipated from their trademarking troubles, when they adopted the Kaumagraph DRY Transfer method of marking.

The trademark transfer on the stocking at left, was applied with Kaumagraph Transfers. The Gordon box label, illustrated below was produced by Kaumagraph's Lithographic Department. In the original this box is a beautiful red and green and gold.

What a difference! For, according to Mr. Morgan of the Brown Durrell Co., this method has eliminated spoilage from water spotting, the mills prefer this method because it is easier to apply, and above all the mark actually lasts as long as the hosiery itself. "The permanence of the Kaumagraph-applied mark," says Mr. Morgan, "is a big help in our advertising campaign because it keeps the word Gordon on the hosiery indefinitely."

Uses Lithographic Service, too.

Mr. Morgan states that the Brown Durrell Co. also enjoys unusual satisfaction with the Lithographic Service Department of the Kaumagraph Co. The beautiful three color Gordon Hosiery package, to which the illustration shown here scarcely does justice, is a sample of the work of this Department.

Kaumagraph is the only company that offers the twin service of trademark transfers and hosiery packing. You will find, as others have found, that it is a great convenience to buy all such requirements from the same one source. Send today for samples of Kaumagraph Lithographic work and Kaumagraph Transfers and learn why the entire textile industry has hailed Kaumagraph's Twin Service as a boon.

KAUMAGRAPH CO.,
350-356 West 31st St., N. Y.
Please send full information regarding Kaumagraph Twin Service.

Name _____

Address _____

C-9-26

COTTON

Published Monthly by

W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga.

L. L. ARNOLD, Editor. **R. W. PHILIP, Associate Editor.**

Editorial and Advertising Department, Grant Bldg., Atlanta, Ga. Subscription price, $1.00 per year; Canada, $1.50 a year; Foreign, $2.00 a year. Entered at the Dalton, Ga., postoffice as second-class matter.

Contributions to the columns of Cotton are solicited and paid for after publication. The names of contributors need not necessarily be used, but must accompany all manuscripts.

Orders for any change in advertising must reach Atlanta previous to the tenth of the month preceding month of issue, otherwise publishers cannot be responsible for changes.

When changing address, notify us, not the postmaster. Always give the old address as well as the new one.

Volume 90 **Member Associated Business Papers, Inc.** **Member Audit Bureau of Circulation.** **No. 11**

CONTENTS

Among COTTON's Readers 51
With the Publishers 55

EDITORIAL—
The Valorization Craze 1069
Is Congress a Grand Jury? 1070
The Building Boom 1070
Reed of Pennsylvania 1070
Stabilizing Selling Methods 1070

GENERAL AND TECHNICAL—
Electric Trucks in the Finishing Plant 1071
Budgeting the Mill Payroll 1074
The Idea 1076
Towels and Toweling 1077
Warp Sizing 1080
"Soap, Societies and Salvation" 1081
Bleaching Cotton With Soap 1084
Finishing Shirtings for India 1087
A Continuous Card Stripper 1088
What the Southern Mills are Doing 1090
The New England Mill Situation 1092
Cotton Comment 1094
Notes about Men You Know or Know About.....1096
An "Old Timer" Says 1099
Cotton Chatter 1101

HOW OTHER MEN MANAGE—
A Spinning Problem 1103
Asks Opinion on Machine Layout 1103
Why the Roving Gets Lighter 1105
Thin Places in Shade Cloth 1107
Fitting Latches and Rockers 1107
Comment on Cards 1107
Worn Pins in Flyers 1109
A Cause for "Loose Ends" 1111
The Ferrand System of High Drafting 1111
Locating Bad Work 1113
To Stop Pin Holes in Duck 1117
Roving Twist and the Weather 1117
Up-Stroke Buckley Beaters 1119
Why the Yarn Breaks at the Spinning 1121
Card Setting and Stripping 1122
Uneven Yarn 1127
Loose and Tight Gauge Settings 1127
Twist in Roving 1129
A Comber Kink 1131
Card Settings and Gauges 1131
Roving Twist and Weather 1132
Fly Frames and Cone Belts 1132

KNITTING SECTION—
The Autostriper Machine 1135
Schemes that Mulct Business Men 1139
Yarn Sizes for Woolen Hose 1141
Team Work and How to Get It 1141
Discharge Printing on Hosiery 1142
A Production Control Chart 1142
A Kink on the Merrow Seaming Machine 1147
Instructing Knitting Machine Fixers 1147
Keeping a Check on Production 1151
The Yarn Market 1152
The Knit Goods Market 1155
Among the Knitting Mills 1162
The Cause and Cure of Picker Fires 1164
An Important Point of Insurance Law 1166

Perspiration cannot injure it

CELANESE brand yarn can be immersed in sea-water for months without absorbing any appreciable amount of water. It is just as resistant to perspiration.

It will not stain nor rot even when worn continually throughout the year. And white Celanese brand yarn never yellows with time.

In these respects, as in many others, this beautiful fiber reveals its unique character. Both chemically and physically it is altogether different from any other textile fiber.

Celanese brand yarn is neither silk nor rayon. It is highly elastic and remarkably durable; and it has unique hygienic qualities. Dyed with its special SRA dyes, it is fast to sun, suds, salt-water and perspiration.

CELANESE

REG. U.S. PAT. OFF.
BRAND YARNS

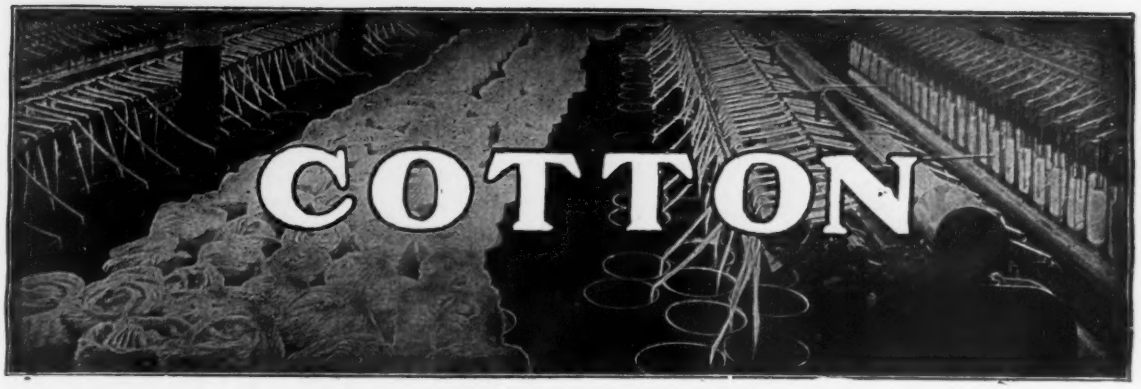
The AMERICAN CELLULOSE & CHEMICAL MANUFACTURING COMPANY, *Ltd*

15 EAST 26TH STREET, NEW YORK

WORKS AT AMCELLE (NEAR CUMBERLAND) MARYLAND

SOUTHERN REPRESENTATIVE: TODD B. MEISENHEIMER
ROOM 1116, JOHNSTON BUILDING, CHARLOTTE, N. C.

CELANESE is the registered trademark, in the United States, of The American Cellulose & Chemical Manufacturing Company, Ltd., to designate its brand of yarns, fabrics, garments, etc.



September, Nineteen-Twenty-Six

The Valorization Craze.

One of the roseate dreams that have charmed the fancies of groups of men since modern commerce began has revolved around the seeming ease by which producers of a commodity, by cohesive action, might compel the consuming world to pay any price demanded. For 500 years or more frequent attempts have been made to thus achieve monstrous hold-ups and enough of them have been temporary successes to cause the belief that the thing can be done to hold on in many quarters. Since the World War, valorization, by which these dreams usually are turned into seeming realities, has amounted almost to a world craze. A dozen or more governments have backed, in some form, valorizing schemes set going on behalf of producers of various commodities. Some of them have been and still are apparent successes—for the time being. A notable instance is Brazil's valorization of coffee, by which more or less artificial price levels have been maintained now for several years. Another instance is that of crude rubber, brought within a left-handed valorized control by the Stevenson Act in British Malaya.

The use of semi-monopoly control of certain products for raising prices arbitrarily always has been advocated in American quarters, notably in segments of the cotton producing world. Considerations of farm relief by Congress at its recent session turned practically on valorization. The demand was that the Government exercise its power of credit and law to guarantee a certain level of prices for the principal agricultural staples, such as wheat and corn. The Administration would not accede to this and nothing was done. This year's Congressional campaign may turn on the issue thus distinctly drawn, at least potentially. The next Congress may be definitely "instructed" to provide farm relief of that kind. In case it isn't done "revenge" may be sought by attacking the tariff in its aspects of protection for certain manufactured products.

The objection to valorization isn't on the ground that price levels for agricultural products should not be more stable, and even higher, but, rather, because it is not yet proven that valorization will work to that end for any safe length of time.

There isn't an instance of arbitrary control of commodity distribution being permanently successful as a price raiser or stabilizer.

One of the earliest modern attempts had much to do with changing the history of the world—but the change was brought about by the failure of the scheme. Several centuries ago the Dutch, who controlled the sources of production, resolved to make the consuming world pay arbitrarily high prices for pepper. Trees were cut down and distribution was severely limited. London merchants got together for self-protection. Out of it came the British East India Company, with all of that company's subsequent bearing on the development of the British Empire.

Brazil once resorted to all sorts of arbitrary schemes for maintaining and misusing that country's one-time natural monopoly of rubber production. The result is that less than 10 per cent. of the world's rubber now comes out of the Amazon basin.

Brazil's many experiments, during the last twenty years, with the valorizing of coffee have undoubtedly cost more than has been realized thereby in advanced prices.

Chile's exactions, though confined to taxes which force consumers elsewhere to bear about 40 per cent. of the cost of running that country's government, on the score of a monopoly of mineable nitrates, have served as subsidies for immense and growing production of nitrates by artificial methods in other lands.

There are two fundamental weaknesses in valorization schemes when applied to quantitative products. No effort to control prices can be successful unless it begins at the source, which is production. This must be controlled. Otherwise, the better prices brought about through control of distribution will be defeated in the end by the increased production thus stimulated. Arbitrary control of production is virtually impossible when the commodity comes, or may come, from widely dispersed areas and from many hands. The other weakness is in that quirk of human nature which keeps beneficiaries of such processes from ever being satisfied. No imaginable price level for anything would be satisfactory to any large group for a long time. The demand is always for more.

The one saving thing about them is that valorization schemes carry within themselves the seed to their own destruction. Hence the present craze will pass. Meantime, it may cause much trouble, as it has done already in international commerce.

Our Government has held out steadily, except during war-time, against schemes of "help" or control that do

not square with sound principles of economics. The record of the war-time experiments do not supply good argument for the use of such schemes at any time. The record of peace-times is almost wholly against them.

Is Congress a Grand Jury?

Refusals by several persons in recent days to answer all questions put to them by Congressional investigating committees have led to an interesting perhaps important, situation. Attempts are being made to punish for contempt in some of these instances.

It is significant that the legislative branch of the Government has to appeal to the courts in exercising an assumed right to compel anyone to disclose virtually anything a Congressional committee may want to know. While the refusals that have thus come to issue may be suspicious, a principle that may be above suspicion is involved.

Grand juries have power to inquire into all matters having to do with even suspected crime. A code of procedure evolved through the centuries throws about inquiries thus made certain safeguards against abuse and certain protections against innocent persons being thus harmed. Members of grand juries are selected by lot from the responsible citizenry, they are pledged to secrecy, which governs the details of their inquiries, and they operate under the guidance of the courts.

These safeguards and protections are not observed by Congressional committees, which not infrequently undertake investigations for the purpose of creating "political" propaganda and sometimes probably for the low purpose of doing specific injury to disliked interests. Given the right to command information, regardless of purpose, Congressional committees might become more abusive than the old Star Chambers by which a species of tyranny was exercised.

There is no reason why Congress should usurp the functions of grand juries or other powers of the judicial branch of government.

The Building Boom.

It seems curious that, eight years after the passing of its primary cause, the war, that the building boom which has risen and risen as the years have gone by, should still be underway. Construction, in terms of cost, attained a new high record during the first six months of this year, in the face of the phenomenal one of 1925. It has been lately the country's biggest single industry, employing around 2,500,000 persons and accounting for an output annually of more than $6,000,000,000 worth. Around $3,000,000,000 worth of homes, or living quarters of all kind, were erected in the country last year.

Costs on the whole have continued to rise and have been considerably above the composite levels of all commodities. For the entire country, housing costs are much higher today, with virtually no shortage anywhere, than during the days of acute shortage almost everywhere. This probably accounts for the continuance of the building boom and may propel it beyond its justifiable limits. On the whole it is now running largely on the extraordinary momentum developed by the unusual demand caused by acute shortage.

When the turn comes will there be a downward trend of building costs and prices? No doubt. But whether that level will decline to the common one is by no means certain.

Economists say that approximately the same percentage of income is spent for housing everywhere and at all times. This item of living cost is governed more perhaps by what one has to spend than by what one gets for what is spent. Thus so long as the average income remains at the present level or increases there may be no radical decline in housing costs. And there is no indication that the size of the average income is going to decline.

Yet all things tend to seek a common level. When the boom ceases and construction operations get back on a normal basis, there is apt to be a readjustment of costs and prices. The abnormally high wages that have gone to workers in the building trades won't hold on against big unemployment in those trades.

Reed of Pennsylvania

Because he has a "poor delivery" and no one who can escape it reads the Congressional Record the merit of one of the most significant men to gain a foothold within recent years in national public life was overlooked by almost everyone until recently. This man is David A. Reed, United States Senator from Pennsylvania.

Young, bold without being rash, with a mind that thinks as clearly as the ring of a bell, grounded in the verities and not unduly ambitious, this Pennsylvanian is apt to be a mainstay of sound thought and actions in Congress.

He has been over-shadowed so far by Senators whose longer service gives them more prominence and ones whose more mellifluous voices are easier on the ears.

But no current Senator's speeches—not even Borah's—"read" better than do those of Reed of Pennsylvania. And he is a worker as well as a speaker.

He comes from Pittsburg, which is almost the capital of industry, and, while filled with the spirit of material progress that characterizes his section of the country, he is a man of broad, albeit idealistic sympathies, wide information and sound principles. It is not unlikely that he is the coming spokesman in the United States Congress of the sane and progressive business spirit of the country.

If you would indulge in some good political reading, look up some of his speeches in the Congressional Record.

Stabilizing Selling Methods.

One of the country's biggest manufacturers says that a cardinal fault of these times is in the way people have abdicated their rights and duties as buyers and accepted the position that they must always be "sold."

Undoubtedly, the science or art of salesmanship has been over-emphasized and exaggerated in recent times, particularly in certain retailing spheres. It accounts largely for the excessive installment buying which characterizes the times and to it owes the over-exploitation of novelties at the expense of substantials.

Leaving it to the salesman is not a safe practice when one is uninformed about the product offered. The salesman's business is to sell, and not to advise.

No doubt there has been great improvement in selling

ethics. The ancient rule of *cavaet emptor*—"let the buyer beware"—has almost passed from the precincts of trade. But even the scrupulous salesman is apt to be over-enthusiastic concerning his product and is prone to emphasize superficialities as against real content.

It might not be a bad move for producers of necessaries—which have been allowed in large to sell themselves—to do something towards correcting the evil. It may not be well for the currents of trade to be influenced by so much high-pressure salesmanship, no matter how warranted such installment purchases may be as an incidental stimulant. A revival of the habit of hunting for what one needs and knowing what one buys would increase the sales of many products that really count and whose worthwhileness is so patent that it need not be demonstrated by vaporous "sales talk."

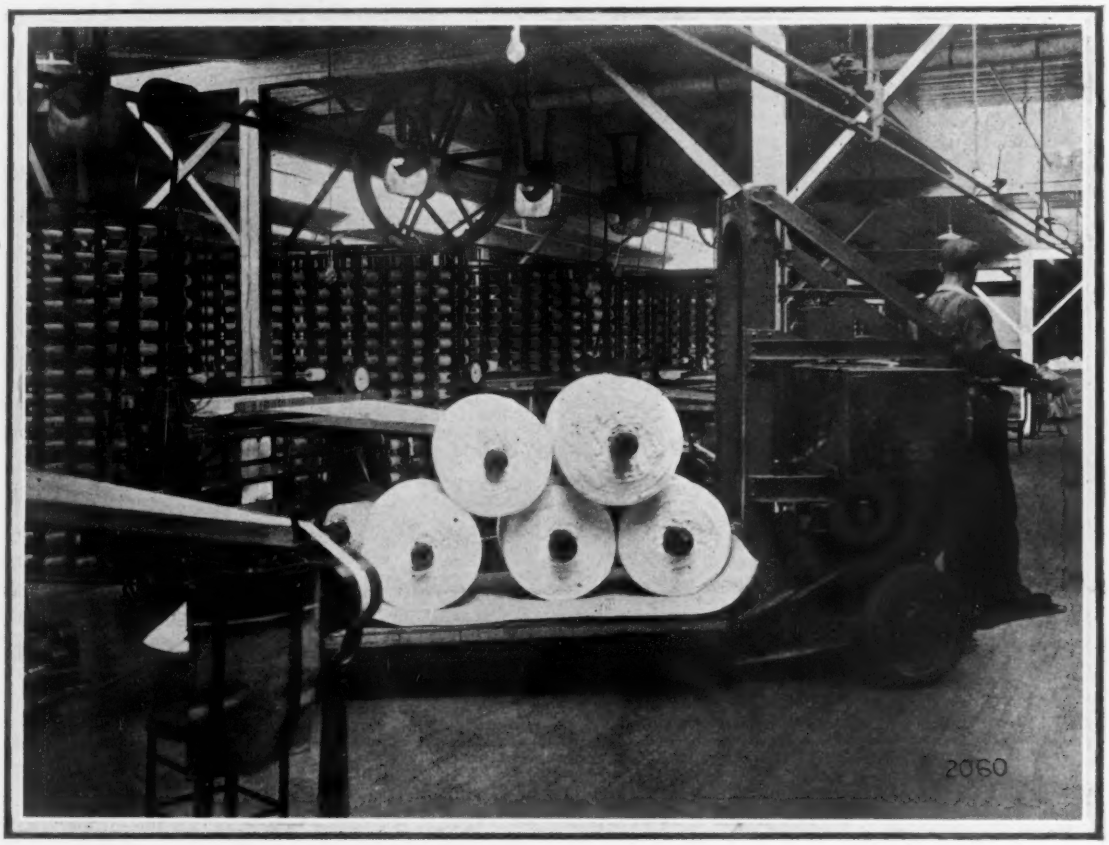
Electric Trucks in the Finishing Plant

BY HAROLD J. PAYNE.

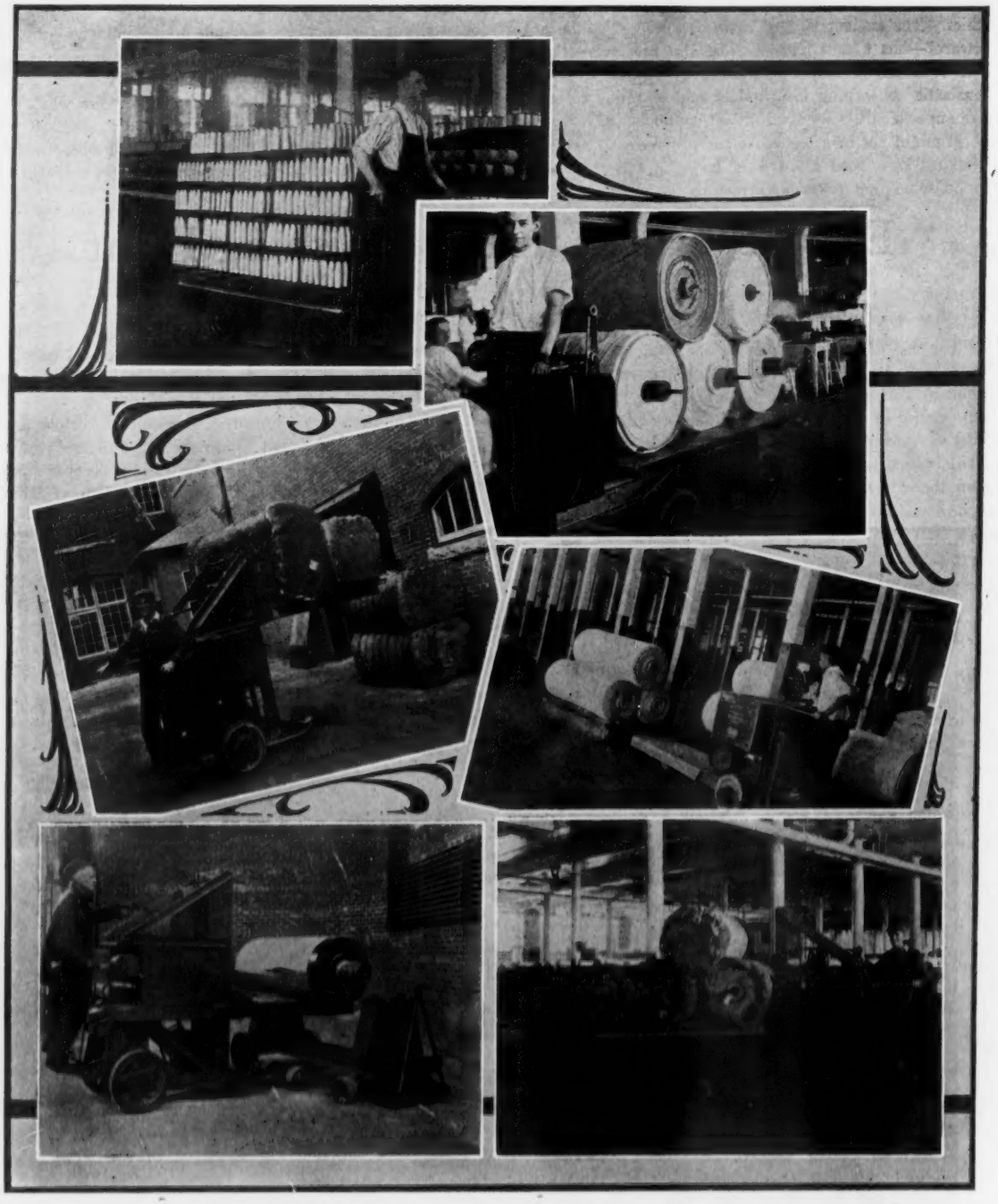
OF THE STAFF OF THE SOCIETY FOR ELECTRICAL DEVELOPMENT.

The use of modern types of material handling equipment is to be observed to an increasing extent in textile plants. There is evidence to support the belief that the importance of multiplying the capacity of so-called unproductive workmen (truckers, hand wheelers or cart handlers) is becoming generally recognized. With this recognition there is further to be observed a growing consciousness of the fact that the problems of the textile industry are not vitally different from those of process industries in general. In other words, the same conditions that are forcing consideration of the problem of eliminating the burden of unnecessarily high overhead in the rubber plant or in the paper mill is now pressing for attention on the part of the executives in the textile industry. Study of the problems involved reveals that the principles of efficient material handling are common to all plants, whatever the nature of product; that the solution depends not so much upon the development of new types of equipment as upon consistent adaption of existing types to the particular requirements of the textile mill.

Because the electric industrial truck in its various modifications has been found especially fitted to the requirements of several plants in the industry and because equipment of this sort promises to be used much more widely in the near future, it is proposed to outline here, in considerable detail, what a representative user is doing.



Perhaps no single plant has used electric industrial trucks on a small scale more effectively than the Utica Willowvale Bleaching Co., Chadwicks, N. Y. This company is engaged primarily in bleaching and finishing cotton cloth although a line of mercerized table cloths, napkins, etc., is also produced. The daily production of the plant runs from four to eight car'oads—a figure included here to indicate the approximate quantity of material that has to be



handled to make up a day's output. Always it is to be considered that for a ton of product from 5 to 15 tons have to be moved through process.

How the Installation Started.

Originally regarding its venture as an experiment, this concern purchased its first electric industrial truck in 1920. On the basis of performance of this unit, another was purchased in 1923, thus making hand trucking or manual movement of box trucks obsolete operations. The introduction of each of these two trucks, which are of the straight platform type adapted both to carrying loads and to handling trailer has resulted in a saving equivalent to the wages of ten men. In addition to this direct saving, many other advantages, more difficult to evaluate, have been discovered.

The work done by these storage battery trucks can best be understood by considering first the layout of the plant. The building in which the bleaching is done is four stories high, approximately 100 feet by 400 feet. On the ground floor are located the gray department and the kiers, as well as the starch mixing room, and driers. A two story extension of this building houses the mercerizing depart-

ment, while storage of bales of cloth before entering process is provided in a warehouse, situated parallel to the main plant and connected by bridges and ramps to this building.

The first operation in which the power trucks are used is in carrying bales of cloth from storage to the gray department. This haul averages at least 400 feet. The bales are stored in the warehouse with a chain hoist, monorail system, and are loaded on the trailers that carry them to the start of process by a standard portable tiering machine, equipped with a small motor. Carrying seven bales on the trailer, and one on the platform, a single truck has moved 55 bales in 35 minutes. A comparison of this performance with the amount of labor that would be involved in moving this number of bales by manual methods gives a key to the savings mentioned. Each day an average of 125 bales have to be handled over this run.

Sequence of Operations.

Following this operation, the cloth is not picked up again by the trucks until after the bleaching process. Depending then upon the nature of material and the form in which it is to be marketed, it is carried in standard box containers (two high wheels and two castors) either to starching or to driers and thence either to the mercerizing department or to the calenders.

In the finishing departments a truck is depended upon for all long hauls. It has been found that this work ties in with carrying the bales from warehouse to process, so a single truck cares for servicing both the gray department and the finishing rooms. In connection with the final steps, hauls have to be made between rooms in which a considerable difference of level exists. No difficulty has been experienced in moving the heaviest loads that can be placed on the truck, however, except on those rare occasions when the ramp is wet from a recent washing.

The millwright department, the starch making department and the shipping department, all use the equipment occasionally. Cars can be spotted in the absence of a switcher and heavy machinery is either carried directly (up to 4,000 pounds) or snaked on rollers if too heavy or cumbersome to be loaded. Although in carrying starch from the storage to the mixing department only one or two trips are made a day, this suffices to maintain a supply that formerly kept a wheelbarrow moving for nine hours.

During the five years that the older of these units has been in service no mechanical difficulties whatever have been experienced. The power consumed is considered to be almost negligible as far as cost is concerned although it probably amounts, for the two trucks, to .50 or .60 a day. The exact daily fixed charge on this particular equipment is 38½ cents per hour and several other trucks of similar type, doing work essentially the same, are known to be operating at an overall cost, exclusive of the time of the operator, of 40 cents an hour, on the basis of a 9 hour day.

The expense of new trailer equipment has been avoided by rigging a simple chain hitch whereby it is possible to pull six or seven of the box trucks, formerly moved by hand. It is interesting to observe here that between the driers and the mercerizing department, where a slight grade over a somewhat even floor exists, two men were formerly required to move a single load. Now the electric moves six such loads at a trip without difficulty.

In connection with the savings effected by this type of equipment in textile plants, the experience of a large New England mill is interesting. This plant is a print works and uses tractors for moving the various types of carts formerly pushed by hand. Five such machines have effected a saving in handling costs of $52,000 a year and have enabled this particular concern to meet a labor problem that probably would have been exceedingly serious otherwise.

Many other plants use these storage battery propelled trucks, in one modification or another, for performing the widest range of operations incident to plant operation. One truck, employed in the basement of a modern mill for carrying bales of cotton from point of receipt to storage bays only works for part of the day a week, this truck is used with a special broom attachment for sweeping. As much work is done by this means in a half hour with one man as was done formerly by four men working half a day.

It is not held that any single adaptation of this equipment provides a never failing means of lowering the cost of performing a given handling operation but the point does hold that on account of its flexibility, many special modifications and low operation cost, the electric truck as a type of material handling equipment is worthy of careful consideration as a possible means of taking the burden out of overhead in the textile plant.

DAVISON'S TEXTILE BLUE BOOK, 39th annual edition for 1926 is now off the presses, the publishers announce, with every mill report carefully revised. Seven hundred and thirty-six new manufacturers have been added, while all mills out of business have been taken out.

Besides the regular reports, a separate list of the new mills is shown, and this is useful in reaching new concerns. A list showing all mills with dye houses is a valuable feature for chemical and dyestuff firms.

The Textile Blue Book is said to be twenty-one directories in one volume, as follows:

Directory of Cotton Mills; Woolen Mills; Worsted Mills; Silk Mills; Knitting Mills; Jute, Linen and Flax Mills; Canadian Mills; Dyers and Finishers; Mills with Dye Houses; Commission Merchants; Cotton Dealers (both domestic and foreign); Wool Dealers; Linter Dealers; Waste Dealers and Manufacturers (both domestic and foreign); Wholesale Rag and Remnant Dealers; Textile Supplies; New Textile Mills; Classified Directory of Mills.

Two editions are issued; the office size, 1,950 pages, with heavy cloth binding, is printed on fine paper with a large page and contains all the above features, while the "Handy Edition" of 1,800 pages has all information given in the office size, except the Classified Directory of Mills, and Textile Buyers Guide.

The Salesmen's Directory, bound in flexible covers, size 3½ x 5¾ x ½ inch thick, is much smaller than the handy edition, but has a full report of every textile mill, dyer, finisher and bleacher arranged alphabetically, all mills under each town, this being different from the Textile Blue Book, which subdivides into Cotton, Woolen, Silk, Knit Goods, Etc.

The volumes can be obtained through the Book Department of COTTON, or from the publishers, Davison Publishing Co., 50 Union Square, New York. Prices delivered, Office Edition, $7.50, Handy Edition $5.00, Salesmen's Directory $4.00.

Budgeting the Mill Pay Roll

BY DUNHILL MARSDEN

In these days of trying and stringent business conditions it is necessary to keep watch over the financial outgo of the mill to the utmost degree to realize any profits or at times to break even by either running full time or on a curtailment plan. Also we read a good deal about budgets in regard to government operation wherein we recently found the great advantage of same in substantial cuts of our personal income tax by the Federal Government; and there is further anticipation of more cuts to come which will help to lighten the load on both individuals and corporations. The effort put forth in anticipating expenditures is like to the proverbial bread that is cast upon the waters for it will return to you many fold.

The system that is to be outlined herein is not marked with any great originality but is almost self evident in the simplicity of its functioning. The whole idea is based upon anticipating or fixing an amount to be spent on each job or position in the mill and then going back to recapitulate it into departments; then the departments are summed up and a final total of fixed or anticipated expenditures for labor is arrived at.

Having the total fixed or anticipated expenditures for each department or process in the mill, then the pay roll is taken each week and the actual amounts spent are posted next to these fixed hours and amounts and a direct comparison is observed of what is taking place in each department or each process as the case may be. We will then know at a glance whether the overseer in charge is keeping within his allotted amount of labor or not and if not, then a good explanation should be forthcoming why his actual expenditures were higher than the fixed or budget figures.

To work out this system we start in the card room and work up a Wage Schedule that shows each class of operative in the card room and the number, together with the hours alloted, the rate per hour and the total amount. The best way to give an example of how this is done is to show the accompanying page of a Wage Schedule that is in operation in a successful mill. This mill runs day and night shifts.

Here we have a complete budget of the card room both for the day and night run. Allowance has been made for the number of hours and amounts for each operation relative to this department. Nothing is charged to this department that bears on another department. For instance the overseer in charge is allowed only 30 hours as he has charge of both the carding and spinning and thus only half his time is allotted to the card room. A copy of this schedule is given to the overseer in charge and he knows exactly how he has to arrange things in order to keep within the amounts allotted to him.

It should be the aim of the superintendent or the manager who makes out or allots the department to make allowances for any extra work that is regular and consistent with the department in question. However, the allocations should not be so liberal as to allow the overseer too much latitude in running his room. At least make it as close as possible so that it will mean effort on the part of the overseer to keep his labor cost down to the set amount or under.

WAGE SCHEDULE.

Card Room.

Occupation	Number	Hours	Rate	Amount
Day Carding—Non-Productive				
Overseer	1	30	.67	$20.10
Second Hand	1	61	.37	22.57
Fixer	1	61	.33	20.13
Oiler	1	60	.21	12.60
Sweeper	1	60	.21	12.60
Cleaners	1	4	.21	.84
Roving Hauler	1	61	.22	13.42
Special Oiler	1	5	.27	1.35
Scrubber	1	60	.20	12.00
Total Non-Productive	9	402		115.61
Day Carding—Productive				
Opener Hand	1	60	.21	12.60
Picker Hands	2	120	.21	25.20
Card Hand	1	60	.21	12.60
Drawing Hand	1	60	.21	12.60
Slubber Hands .70Hk	1	80	.09Hk	21.60
Intermediates 2.00 Hk	1	80	.12Hk	25.20
Fine 5.60 7x3½	1½	90	.12Hk	29.76
Fine 5.60 8x4	½	20	.15Hk	5.55
Fine 7.00	1½	90	.12Hk	25.92
Total Productive	11	660		171.03
Total Day Carding	20	1062		286.64
Night Carding—Non-Productive				
Overseer	1	60	.40	24.00
Oiler	1	60	.23	13.80
Roving Hauler	1	60	.22	13.20
Total Non-Productive	3	180		51.00
Night Carding—Productive				
Card Hand	1	60	.23	$13.80
Drawing	1	60	.017Hk	15.81
Slubbers .70 Hk	1	80	.11 Hk	23.10
Intermediates 2.00 Hk	1	80	.14 Hk	29.40
Fine 5.60 Hk. 7x3½	1½	90	.14 Hk	32.90
Fine 5.60 8x4	½	20	.17 Hk	5.95
Fine 7.00 7x3½	1½	90	.14 Hk	28.00
Total Productive	8	480		148.96
Total Night Carding	11	660		199.96
Total D. & N. Non-Prod.	12	582		166.61
Total Day & Night Prod.	19	1140		319.99
Grand Total D. and N.	31	1722		486.60

You will be surprised how nice this works out in practice and the pride that the overseer takes in keeping his payroll down to the minimum. At the mill in question they have a weekly overseer's meeting where the manager reads out the results of the payroll and compliments or criticises the actual expenditures in each department.

But I am wandering away from the field of thought. This process of analyzing each position in the various departments is carried clear through the mill and every penny is accounted for. For the sake of the figures that follow, the wage schedule or wage budget is given for the rest of the spinning room, which is a medium count print cloth outlay.

It will only be necessary to give as an illustration the wage schedule layout through the spinning room to give an idea of how each position in the mill is outlined and analyzed showing rate, hours and amounts. In making this up the idea is carried clear through the mill, even including the repair shop, outside force, and everything except the office force and mill executives. In fact, everything is included that comes under the head of mill labor and is paid on the weekly mill payroll.

From this analysis of the individual positions in the mill is made up a summary called the Recapitulation which shows the employees, hours and amount of the budget of each department. The recapitulation of the foregoing examples is given herewith to show the completed budget as related to departments.

SPINNING

Occupation	Number	Hours	Rate	Amount
Day Spinning—Non-Productive				
Overseer	1	30	.67	$20.10
Second Hand	1	61½	.37	22.75
Fixer	1	60	.27	16.20
Oiler	1	60	.23	13.80
Bander	1	60	.23	13.80
Sweeper	1	60	.23	13.80
Quill Skinner	1	60	.21	12.60
Roll Cleaners	4	32	.24	7.68
Cleaning	1	12	.27	3.24
Humidifier Cleaning	1	11	.23	2.53
Premiums				1.00
Total Non-Productive	13	446½		127.50
Warp Doffing	2	120	.043	25.80
Filling Doffing	2	120	.026	29.74
Total Doffing	4	240		55.54
Day Spinning—Productive				
Warp Spinners	7	420	.0242	75.50
Warp Quartering	3	30	.0242	16.57
Filling Spinning	7	420	.0242	75.50
Filling Quartering	4	40	.0242	18.87
Rewinding	1	60	.21	12.60
Total Productive	22	970		199.04
Extra Run	18	120		40.89
Total Day Spinning	57	1776½		426.57
Night Spinning—Non-Productive				
Overseer	1	60	.50	30.00
Second Hand	1	60	.35	21.00
Oiler	1	60	.25	15.00
Sweeper	1	60	.22	13.20
Quill Skinner	1	60	.22	13.20
Total Non-Productive	5	300		92.40
Warp Doffing	2	120	.054	32.40
Filling Doffing	2	120	.036	28.08
Total Doffing	4	240		60.48
Night Spinning Productive				
Warp Spinning	7	420	.0284	88.66
Filling Spinning	7	420	.0284	88.66
Total Productive	14	840		177.32
Total Non Pro. D.&N.	18	746½		220.50
Total Product. D.&N.	36	1810		376.36
Total Doffing	8	480		116.02
Total Extra Run	18	120		40.89
Grand Total Spinning	80	3156		756.77

RECAPITULATION.

Department	Employees	Hours	Amount
Day Carding	20	1062	$286.64
Night Carding	11	660	199.96
Day Spinning	57	1776½	423.97
Night Spinning	23	1380	330.20
Spooling	13	780	140.28
Warping	3	180	54.55
Total	127	5838½	1435.20
Slashing	4	242½	74.36
Tying and Drawing	4	211¼	70.05
Day Weaving	43	2325	784.84
Night Weaving	33	1980	794.12
Cloth Room	14	810	207.00
Total	98	5568¾	1930.37
Shop, etc.	8	356	115.59
Outside, etc	7	420	100.20
Supply Room	1	30	15.00
Total	16	806	230.79
Grand Total	241	12213¼	3596.76

The next step is to take the payroll time sheets as turned in by the overseers and sub-total or divide them into the various classifications as shown in the recapitulation so as to make a direct comparison of what has been actually done against the estimated or fixed budget both in relation to hours and in relation to amount of money spent. Consequently I present herewith the form and figures from a concrete example of this comparison. The items or columns marked "fixed" means the figures taken from the recapitulation of the budget or wage schedule sheet.

From these figures are figured the "overs" and "unders" which means the amount over and the amount under the fixed or budget amount given on the wage schedule recapitulation. Of course, there are a number of things that will come up to alter the actual amounts so that they will vary slightly from the fixed amount, especially where so many operations are on piece work. Take the matter of the fixed amount for weaving. This is based on a certain

Department	Fixed Hours	Actual Hours	Fixed Amount	Actual Amount
Day Carding	1062	1017	286.64	277.34
Night Carding	660	650	199.96	197.24
Day Spinning	1776½	1789½	423.97	410.79
Night Spinning	1380	1332	330.20	327.49
Spooling	780	798	140.28	143.13
Warping	180	180	54.55	56.54
Total	5838½	5766½	1435.69	1412.53
Slashing	242½	232½	74.36	70.32
Tying and Drawing	211¼	202½	80.05	65.70
Day Weaving	2325	2326½	784.84	794.20
Night Weaving	1980	1974	794.12	742.17
Cloth Room	810	634	207.00	168.39
Total	5568¾	5369½	1930.37	1840.78
Shop	356	368	115.59	115.31
Outside	420	421	100.20	102.92
Supply Room	30	30	15.00	15.00
Total	806	819	230.79	233.23
Grand Total	12,213¼	11,955	3596.76	3486.54

price per cut and a certain estimated percentage of production from past experience. Immediate conditions may give more production for the weaving which will run the amount of the weave room payroll over the budget, but the actual hours should check close to the fixed hours. Again, a lowered production where the work on piece rate will give an actual amount as lower or under the fixed amount.

To get back to the foregoing example of fixed and actual hours the amounts of the overs and unders are given.

Department	Hours Over	Hours Under	Amount Over	Amount Under
Day Carding		45		9.30
Night Carding		10		2.72
Day Spinning	13			13.18
Night Spinning		48		2.71
Spooling	18		2.85	
Warping			1.99	
Slashing		10		4.04
Tying and Drawing		8¾		4.35
Day Weaving	1½		9.36	
Night Weaving		6		51.95
Cloth Room		176		38.61
Shop	12			.28
Outside	1		2.72	
Totals	45½	303¾	16.92	127.14
Total Hrs. Under		258¼	Amount Under	110.22

Here we will see that over $100.00 per week has been saved so to speak by keeping check on what should have been expended for the item of labor. Once the system is installed in a mill it is worth many times over the time and trouble it takes to keep it going and is paid back amply in greater efficiency and lowered costs.

A booklet describing the Whitin Model F spooler has been issued by the Whitin Machine Works, Whitinsville, Mass. This spooler is designed for handling cotton, silk or rayon, giving it a flexibility especially useful in the present-day times of changing styles. The booklet describes each feature of the machine, pointing out particularly the the builder motion, with which it is explained any desired wind may be obtained since filling, warp and combination builders are available. A description of the company's new washer tension is included. This tension device is so constructed that the bottom washer revolves or rotates slightly due to the weight of the top washer, which is made to work in an eccentric circle. This, it is pointed out, keeps the washer surfaces clean, the neps and slubs falling either off the outside of the bottom washer or through a hole in the center of the bottom washer. The several other various thread guides adaptable to the spooler are described. The washer tension, it is stated, can be applied to old spoolers of any make to spool from filling wound bobbins. Specifications, floor plans, production tables, etc., are also included in the booklet.

The Idea

BY U. DODGE.

Once upon a time there was a Man who had an Idea.

It was a very tough Idea and very hard to Kill, or it would never have been able to bore its way into this Man's head, because he had a very hard and thick Head; but this Idea went to work and dug itself into a home under his Cranium because it was tired of Life, and being a rather old Idea and not as strong as it had been, it was looking for a permanent Home where it could pass its old age in Peace and not be Bothered. So it picked the most air-tight Dome it could find and got in out of the weather and lay down for a Rest.

The Man didn't realize for quite a While just what had happened to him. He wasn't used to having Ideas take up with him and didn't recognize the Sensation until the Idea had begun to get fat and lazy from want of Exercise, and a whole lot Bigger than it had been. Then it took up so much Room the Man couldn't overlook it. At that, it took him a long time to get used to having Company.

At first he regarded it with Suspicion. "Here's something," he said to himself, "that has fastened itself onto Me, and I don't know what to Do with it. Shall I chase it off, or make it Welcome? It looks like a darn good Idea, but I don't know what to Do with it. What are Ideas Good for, anyway? Shall I give it away, or shall I Keep it? If I give it to somebody Else maybe he will profit by it and make a lot of Jack, and if I keep it to Myself, it will maybe eat me out of house and Home unless I put it to Work. Maybe if I don't take any notice of it, it will Smother and I won't be bothered with it."

So the Man refused to have anything to Do with the Idea, hoping it would die out or go Off, but it didn't do either one. It just stayed around and got Bigger and Bigger until after a while the Man began to have a liking for it. "It's a darn good Idea," he said to himself, "and the more I See of it the more I Like it. It gets Better and Better, and I believe it's all right, because look whose Idea it is."

So he got Proud of his Idea, and decided he wanted to keep it all for Himself, and not let anybody have Any of it, so he put on his Hat and wore it all the time for fear somebody would see through his Head, which couldn't be done, and get his Idea away from him. But he Bragged about it. He told his Boss he had a good Idea right there in his Head that would revolutionize the business if it could be put into practice, and when the Boss wanted to know what it was he said "Don't you think I'm going to hand out the product of my Brains just that way and not get anything for it but Thank You. I might sell it to you if you want to Buy it, but you will have to pay a good Price, because this is a good Idea."

So the Boss said, "Well, I can't buy it until I see what it is, but if you will Tell me About it we will start it going, and if it Works out all Right, I'll divide up with you." But that didn't suit the Man, so he went off and thought some more about his Idea and what a good Idea it was until the Boss sent for him again. And the Boss gave him a Shock. He said, "Look here, you may not know it, but since you got this big Idea and have to spend so much Time thinking it Over, you've got to where you're not near so Good around this place as you used to be, and I want you to leave the Idea Home if you don't want anybody to see it, and get a Hustle on."

But the Man said, "Well, you're just jealous of my Brains and you want to make me give you that Idea anyway so you can take it and get Credit for it yourself, so I'll just Quit and go to work somewhere Else where they like to have a Man with Intelligence." So he quit and looked all Over for another job, and everywhere he went and told them he had been Fired for having too much Sense they would laugh and ask him what the great Idea was, but he wouldn't tell them, and then he would get Mad and go off without getting a job. And he darn near Starved.

So he went back to his old Boss and he said, "Well, you got me licked. I've got to eat, so I'll just tell you what the Idea is if you will give me my old job Back, but I'll always Hate you for doing me out of my Idea because I'm entitled to the product of my Brains. So the Man told the Boss what the Idea was, and the Boss laid back in his chair and Laughed a Long time, and the Man said "What's the matter?"

"Why," said the Boss, "that Idea is not a good Idea. It is as old as the Hills and then some. It was tried out so long ago that folks have Forgotten about it. Now here you come with that old Thing, thinking it is something worth losing a job over and getting all Mad with everybody in sight." So the Boss went to work and Explained to the Man just why the Idea was not so good and when he got Through the Man said, "I believe you must be right. Maybe I'm not as Smart as I thought I was. I don't think I have as much Sense as I thought I did, and I am very glad of it, because it was a Burden to have so much Sense."

Then the Boss said "Even so, you deserve some credit for thinking it Up all by yourself. There's been a lot of Brighter men than you got fooled with that Idea, because it sounds Good, and the only way we know it isn't good is that we have Tried it. Now I've been thinking that you've been staying too close to the Job for the last few months, and I want you to take some of the company's Money and make a little trip around to some of the other Places and see what some of the other folks are Doing and just how they handle these problems, and incidentally, meet a lot of darn good fellows on the Way."

So the Man went off and bummed around quite a lot and they showed him through Here and Yonder and he came back with a whole lot smaller opinion of himself and he told the Boss, "Some of those guys got us skinned forty ways. We got them beat, too, in Some things, but it looks to me like we've been in a Rut. Everybody was very nice everywhere I Went, and showed me everything they had and told me all they Knew, and they sure asked me a lot of Questions, and I didn't know before how much I didn't Know."

"But there's one thing they are doing in one place I went to that took my Eye, and I've been thinking it over and I believe that if we did that too, only I think that if we did just So instead of like they do, it would help us some," and the Boss' eyes began to stick Out and he hollered "Feller, you've got a real idea this time and don't Know it." So they put that Idea On which was an alto-

gether different Idea from the first one the Man had and they didn't know if it would work very Well, but it did and saved the company a lot of Money and made a better Product, and the Man got his pay raised and then he got a sort of commission on what his Idea saved, and before he knew it he had a lot of Jack and wasn't Sore on anybody and wasn't afraid the Boss would Steal from him.

I hear his Boss is getting Old and he is going to take his Place, but I don't know for Sure.

Moral—I have an Idea that if there is a Moral to this tale, it would be a good Idea for you to think it out for Yourself. That's what your Thinker is for if you have one, and I know you have one. I don't know if you ever Use it, but if it is in working order, try it out on this Tale.

Towels and Toweling

BY T. WOODHOUSE AND A. BRAND

Measuring and Knocking-off Motions.

As already mentioned in these articles, many towels are woven with cross-borders or headings of simple or of elaborate design. In many cases the cross-border forms the sole ornamentation, apart from the characteristic effect derived from the particular weave used. When of simple character, the cross-border may owe its effect to change of weave, to change in the count of the filling, to change of color in the filling, or to any combinations of these. The particular method used determines the type of loom necessary to produce the required fabric.

When of simple character, capable of being produced in a tappet loom, no change of weave is effected except in special cases, and the cross-border effect is derived from change of color or change of count, or both. In each case, at least one extra shuttle will be necessary, but a box motion is not absolutely essential. It may be left to the operative to stop the loom at the required point, remove the shuttle containing the body filling, insert a second shuttle carrying the border filling, and restart the loom. Although such an arrangement permits of the production of check patterns with an ordinary loom, it is seldom an efficient or even a satisfactory method.

When the design of the towel is elaborate and changes of weave occur in the cross-borders, it may be necessary or advisable to employ cross-border dobbies or cross-border jacquards, either automatic or hand-controlled, while, if there are frequent changes of the filling, a box motion will be necessary in addition. This complication of the loom, while it may facilitate the automatic production of an elaborate article, of necessity reduces the loom speed—particularly narrow ones—and retards the rate of production.

As stated above the production of check patterns is seldom satisfactory, but, in cases where a comparatively great length of the body of the towel is to be woven, the box motion may not be considered essential. Hence, there are certain types of fabrics woven in looms without box motions, in order to take full advantage of the higher rate of production rendered possible by employing ordinary single shuttle looms. The onus of determining the correct point for the commencement of the cross-border is thrown on the operative, and there are several special devices designed to warn the weaver when to remove the shuttle carrying the body filling and insert the second shuttle with the cross-border filling and vice versa. In a few cases, primitive means of attaining this end are adopted. For example, the operative may be provided with a tape giving the exact length of the body of the towel. By periodical measurement, he or she ascertains when the body of the towel is completed, and then carries out the operation of changing shuttles. This method, although extensively practiced, is obviously not quite satisfactory. When a tape or string is used it is the better plan to use a tape which is the full length of the towel, and to commence the measurement at the first pick of the second cross-border in each towel. Thus, both cross-borders (the second of one towel and the first of the next towel) are woven at the beginning of the tape, and therefore the weaver may stop at any pick of the ground or body weave when the end of the tape coincides with the fell of the cloth, and thus make every cloth the exact length, whereas a certain amount of guesswork is prevalent in the previous method of measuring with a tape.

Automatic means are often employed for the measurement of towels, and a typical example of such a motion—designed for measuring the towel and knocking-off the loom

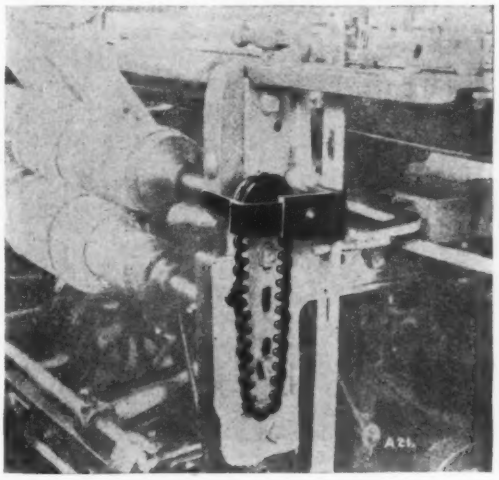


Fig. 129.

at the finish of each towel—is illustrated in Fig. 129, which shows one arrangement of the required parts. The arbor of the take-up roller is extended beyond its usual length at the driving side of the loom, and to the arbor is fixed a chain sprocket. Over this sprocket an endless chain of suitable length passes, close to, but not in contact with, a finger attached to a bracket secured to the knocking-off spring or to the belt-control handle. One or more large links are inserted in the chain; at intervals corresponding to the length of fabric desired between each change of shuttle. One of these large links is clearly seen in the front part of the chain in Fig. 129. When this large link comes into contact with the finger, the belt-control handle is pushed forward out of its retaining notch, when the belt-fork immediately moves the belt from the tight pulley to the loose one, thus stopping the loom. The weaver then makes the necessary change of shuttle and re-starts the loom.

Box Motions.

When it is desired to control in a completely automatic manner the insertion of two or more distinct kinds of filling, the loom must be fitted with box or checking motions. Many different types of these interesting mechanisms are available for use in the weaving of towels and toweling. They are usually, but not invariably, fitted at one side of the loom only, so that changes can occur at this side only, and hence each different filling must be inserted in even numbers of picks, i.e., in multiples of two picks.

One of the simpler forms of these motions is the revolving box type, of which one design is shown in position on

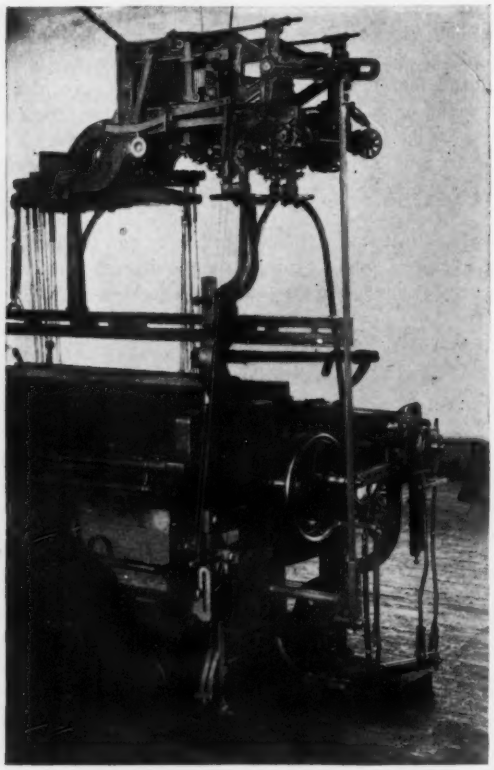


Fig. 130.

the loom illustrated in Fig. 130. This motion can control six shuttles, not necessarily of six different colors, and, since it is mounted at one side of the loom only (opposite the driving side) it can insert the different fillings in multiples of two picks. The shuttle-box mechanism is arranged to move the box one compartment at a time, although a variation of the motion, not often used in towel weaving, may be obtained to move the box through 1, 2 or 3 compartments at each change.

The revolving box type of checking motion is specially adapted to light fast-running looms, invariably fitted with loose-reed protector motions, since the revolving box prevents the ordinary type of protector motion from being used. In respect of speed they are more advantageous in use than the usual form of drop-box motion, even though the latter may be perfectly positive in action. This is accounted for by the fact that the movement of the box is purely rotational and almost perfectly balanced, which also explains why they generally require less power than similar looms fitted with drop-box mechanism.

Although revolving box looms are usually built with six —and occasionally seven—compartments, they are seldom arranged to control more than three different colors. It must not be inferred that only three compartments are usually occupied, since it is a common practice to duplicate colors in order to save the necessity of a skip-box device.

The revolving box motion is actuated, or, rather, controlled, by an endless chain of metallic cards, each of which is punched with a hole or left blank in order fully to control all movements of the box. On each alternate

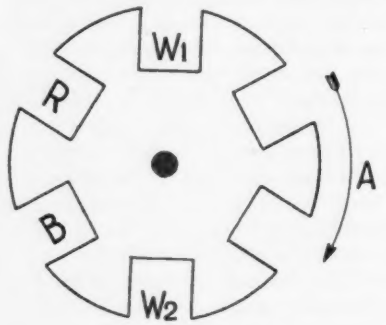


Fig. 131.

pick, the card cylinder is presented to two pegs. Should the card be blank, both pegs are pushed back, and no change occurs in the position of the shuttle-box. Should the card have a hole at one side, the corresponding peg is permitted to enter the cylinder, and the box is rotated in a forward direction, bringing a different shuttle-box in line with the race and, of course, placing a different shuttle in position for action. Finally, should the card have a hole at the opposite side, the other peg enters, and the box is rotated in the backward direction.

A good deal of ingenuity is sometimes expended in building up the pattern chain, so that the required order of inserting the different fillings is obtained with the minimum total movement of the shuttle-box. In many cases, and particularly when the motion is not of the skip-box variety, it is necessary to use at least two shuttles carrying the same kind of filling.

For example, suppose that the shuttle-box has 6 compartments, and that it is desired to insert the filling in the following order:—

8	picks	white		
4	"	blue	} 3	
2	"	red	} 1	
4	"	white		
2	"	red	} 4	
4	"	blue	} 2	
8	"	white		

32 picks in all.

An examination of the order of the pattern will show that two shuttles with white filling are necessary, since it is essential to move from red to white (see the bracketed picks numbered 1), and from blue to white (see bracketed picks numbered 2), while it is also expedient to move from blue to red (see bracketed picks 3), and from red to blue (see bracket 4).

Unless a skip-box motion is in use, the foregoing order of coloring can only be accomplished by arranging the colors as indicated diagrammatically in Fig. 131, where:—

W_1 and W_2 represent white filling. *R* represents red filling *B* represents blue filling, and the arrow *A* indicates the forward direction of movement. The three different kinds of pattern cards are shown diagrammatically in Fig. 132, where:—

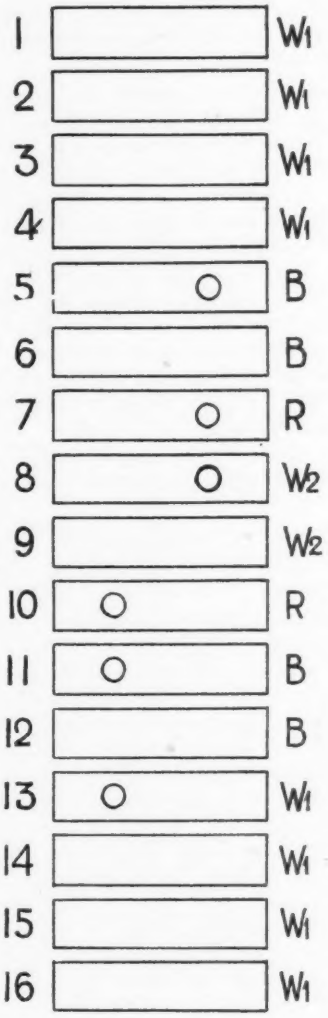


Fig. 133.

S indicates the blank card which results in the boxes remaining stationary.

B indicates the punched card which causes the boxes to move backwards, and

F indicates the punched card which causes the boxes to move forward.

Hence the complete pattern chain for the order of inserting the filling indicated above will be as shown diagrammatically in Fig. 133. Each card in the chain acts for 2 picks, consequently there are 16 cards for the 32 picks.

It is obvious, of course, that this chain would be unsuitable for the usual make of towel, in which there may be a very large number of, say, white picks in the body of the fabric. There are at least three ways, however, by means of which the insertion of the necessary number of body picks may be controlled.

1. A short pattern chain, such as indicated in Fig. 129, may be made and applied to the loom. During the weaving of the body, the motion is put out of action by tying back the card cylinder. The weaver measures the required length of the body by means of a tape, as already

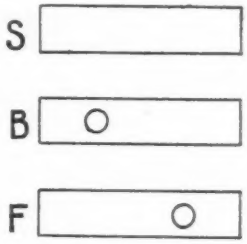


Fig. 132.

described, and when the desired length is woven, allows the box motion to come into action, throwing it out of action once more when the necessary colored picks are inserted.

2. The requisite number of blank cards may be inserted in the pattern chain. This will render the weaving of the complete pattern fully automatic, but the chain may become of very great length, and too cumbersome for satisfactory use.

3. Some form of card saving motion may be employed, which will eliminate, or at least very materially reduce, the number of blank cards necessary in method 2.

A typical example of a card-saving motion is illustrated in Fig. 134. As will be seen in the illustration, the mechanism has three card cylinders instead of the usual single cylinder, and is so arranged that the movement of any one cylinder is controlled from either of the two remaining cylinders. The motion has the great advantage that it can be arranged to control all three cylinders—two for the pattern lags, and one for the control lags—in a cross-border dobby, without interfering in any way with the working of the checking or box motion.

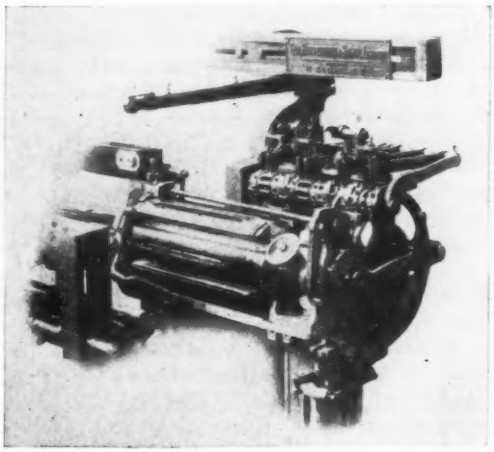


Fig. 134.

Warp Sizing

BY PAUL SEYDEL.

Defects of the Warp, Detection, and Useful Hints.

Some of the defects of a warp are evident before the cloth is made. Sometimes they only become evident when some processing or some use shows an inferiority.

A finisher sent a sample of cloth to a grey goods mill complaining that it was so gritty that it caused considerable damage. The writer having been called as consulting chemist examined the sizing compound, the starch, the cloth and the water. The warp of this cloth plainly showed under magnification of 100 diameters small particles like fine sand with sharp edges. A number of samples of cloth and warps were examined and only the sample of cloth complained of showed this defect and it was unmistakably on the warp.

The only conclusion that could be derived from the careful examination of materials, conditions and circumstances was that intermittently the water supply used for sizing had fine particles of sand in suspension. The remedy suggested was better settling provisions for the water, an adequate filtering installation, or the use of condensed steam for making up the size.

The water supply for successful sizing should be good, clear, soft, free from gritty sediment, suspended matter, or anything likely to affect the warp unfavorably.

Mineral Oil Stains—The warp sometimes has mineral oil stains, either just oil or oil and dirt, often containing iron.

When the finisher finds mineral oil interfering with his processes he is inclined to think that the sizing is to blame. I have never found this to be the case. If mineral oil stains give trouble to a finisher, in every instance that has come to my notice it was due to lubricating oil splashing on the warp or cloth through careless operation. In the sizing I have examined, there was always a good deal of vegetable or more often animal fat and if a reasonable amount of mineral oil was used it would be so emulsified or dissolved in the tallow and other fats and so evenly spread over the whole fabric that any agent that would remove the tallow and vegetable oil would also remove any reasonable amount of mineral oil.

It has been advocated to use stainless oils for lubricating which are wholly or at least partly composed of vegetable or animal oils, and especially such oils as sperm oil in proportions of at least 50 per cent, such mixtures well made would scour and emulsify readily and avoid troubles attributed by finishers to mineral oil.

Mildew—There are many varieties of mildew, every shade of the rainbow, besides black and brown, being exhibited by the different varieties: yellow, green, pink, purple, grey, red, brown, black. The red is often mistaken for rust spots. All are due to excessive moisture; exposure of the fiber to dampness for a sufficiently long period.

Mildewed cloth generally has a characteristic odor, although when the cloth is dried and exposed to the air this odor may disappear. Chlorine bleach, sodium or hydrogen peroxide will generally bleach out mildew stains. In this way mildew stains can be differentiated from iron stains. In most cases the mildew is only on the size and unless it has attacked the fiber it is readily removed.

A good way to determine whether the stain is due to iron or mildew is to incinerate the cloth. Mildew will leave a white or greyish ash whereas iron will not change in color or be yellowish red. Besides, the well known tests for iron may be used.

Rust Spots—Rust may be due to a number of causes. The most common being rusty pipes or careless handling of the size kettle. If a steel kettle is to remain idle any length of time it is good practice to fill it full of water and put in this water a pound or two of some form of sodium carbonate such as soda ash or sal soda, this is drained or washed out before kettle is used again. The water pipes should be at least galvanized or preferably of brass or copper. The metal parts of the loom are apt to rust, especially the reeds and heddles in a room where humidifiers produce a very damp atmosphere. A size mixture with the proper proportion of fats will have the tendency to protect such fats where the sized warps come in contact with the metal.

Oil from bearings of the loom or rusty shafting often cause iron stains which remain even after the oil is removed.

An iron stain will not be removed by boiling the cloth with soap or soda, such a stain will resist chlorine bleach, which will discolor mildew stains. A test for iron can be made with sulpho-cyanide of potassium or ferrocyanide of potassium.

Iron stains may be removed by binoxalate of potassium, oxalic acid, dilute hydrochloric acid followed with copper sulphate. This must be done with great care and the chemicals well washed out for if they remain in the cloth they are apt to damage the fiber.

The finisher loves to blame the size manufacturer or the size mixer for the numerous troubles he encounters. It is true that some unscientific size mixtures made without thought of the requirements of further processing might cause trouble, but in most cases that have been brought to my notice the finisher was trying to "pass the buck."

More than once I have been called to advise when a finisher who complained about what he called "resist stains," thoughtlessly blamed the size mixture used for the warp when the goods were made of two ply yarn warps totally unsized. Upon analysis of the cloth I determined that although no size had been used by the manufacturer, the cloth contained a considerable amount of starch and sizing material, further investigation showed that the finisher had used a finishing mixture containing a considerable amount of starch, this finish had been allowed to cool, a crust and consequently a considerable amount of insoluble starch had formed. No amount of stirring or boiling could get this back in solution and, of course, the finish was uneven. The calender friction made a shiner wherever there was a lump of size, no matter how small and the result was a very ugly piece of cloth, especially if the cloth was dyed a light shade. The finisher, confronted with the facts, had to admit that the manufacturer was entirely blameless.

Many defects and controversies with the finishers can be avoided by using a size that is scientifically compounded,

with a view to help produce ideal weaving conditions and yet not forgetting that the cloth must be bleached, dyed or processed one way or another after it is woven, also that it must be shipped, stored and often kept on shelves and in store rooms for long periods.

The manufacturers of a size can when requested generally prove to the finisher that the cloth manufacturer is blameless when controversies come up with the finisher.

Useful Hints—A large mill weaves small bags made of 7s or 8s yarn loosely woven, these are tied on the outlet of pipes discharging from the size kettle into the size box. These bags catch lumps of starch, sticks, straws, pieces of string and bagging and at a very small cost save the warp from material which might cause seconds to be produced. The bags are put on fresh every morning and are used all day, at night there is invariably a small amount of undesirable matter in each bag which in this way is kept from deteriorating the warp and of course the cloth. This is a very good practice not only for sizing but especially for finishing.

Other mills have a small box shaped sieve, the bottom of which is a fine mesh copper screen to strain the size as it enters the size box, either method is good and serves an excellent purpose.

It is very important to wash the size box every night right after ending operations and to leave no old size, films, etc., in them over night, but to have them scrupulously clean and ready for running the next morning.

The same care should be taken of the size kettle and circulating system. A suitable arrangement should be made, so that the kettle can be cleaned and flushed without discharging into the size boxes.

Much trouble is caused by careless handling of warps, keeping warps in places that are dusty and unclean. The warp dresser should insist on having a clean room free from dust and dirt, and his assistants should be warned to handle the warps with care, as in a moist state they readily absorb dirt and dust.

It is advisable to have the size maker use a container for weighing his starch large enough to hold the whole amount at one weighing. The use of two or three roving cans that can be placed on the scales together and all weighed at once is very good. This gives one weighing and at the same time affords an easily handled amount. Weighing in pails or small amounts leads to mistakes which single weighing readily avoids.

Some mills in order to check on the size maker use glass slides. Just after the size has finished cooking, the slide is dipped in the size and placed in a protected place, free from dust or air currents, to dry. A very slight difference in amount of starch or compound or even in cooking makes a marked difference in the appearance of the films produced. If these films do not run uniform, the size maker is not on the job. A little experience will soon teach the overseer or superintendent how to judge a good film from a poor one.

Some recording or regulating instruments when properly cared for and kept in good repair are very useful to help obtain even results.

"Soap, Societies and Salvation"

BY W. M. McLAURINE.

Many industries today have various agencies within their organizations; agencies for the care, development and recreation of their employees.

Much has been said for and against these social agencies by men whose views are honest and sincere. It is not the purpose here to discuss either position. It is simply assumed that they are a necessary integral part of any organization and must be so regarded.

All of these departments tend toward the health, happiness, and development of the employees. In order to discuss them we shall have to break them up into rather arbitrary divisions.

Health Department.—The first we shall consider is the health department proper. It may consist of a hospital with doctors and nurses, a clinic with doctor and nurse, or a local resident doctor and a first aid room in connection therewith. There are several different attitudes taken with reference to this department. The employees frequently regard them as unnecessary and having some ulterior motive behind them, built for the management's advantage and not for theirs, or they give them a lukewarm support of outward evidence, but inward reluctance, or they regard them as a great privilege and cooperate in receiving its dispensations and carrying out its desires.

This is a period of life in which there is much suspicion and doubt. The best intentions are always regarded doubtfully by someone, and this someone spreads the deadly contagion as he goes.

There is no doubt about the twofold purpose of the medical department of any organization. It is of advantage to the employer and the employed. It is of greater advantage to the employee than the employer if it is properly interpreted. This department can care for the sick and accidents more rapidly and safely and cheaply than any outside organization. It is a department not dependent upon outside support for its upkeep, and one in which proper attention is not a question.

It guarantees the best care and protection within the home community, among friends, administered by people whom we know and who have our interest at heart.

It is the duty of the foreman that he shall properly cooperate with this department by interpreting it properly to his employees and having them to regard it in the proper way.

In accidents, sudden or acute illness, medical inspection, epidemics and many other ways, a foreman may lend valuable asistance to all concerned by his influence and attitude.

Ignorance is the curse of the world, and ignorance produces much doubt and suspicion. The foreman is the leader, the able man of his department, therefore he must educate his people into the real value of the medical department.

Vaccinations and serums are regarded by many people of narrow experience, as awful and diabolical punishments inflicted upon them by power and not by necessity. A little judicious explanation, heart to heart and head to head work, can often change the entire attitude of a group completely. They in turn will change others.

There is another phase of work conducted by the medi-

cal or health department. It is educational. This department often carefully examines the children, their teeth, ears, eyes, noses and throats, weights and heights and other characteristics. They then instruct them and their parents as to what treatment or diet should be used to overcome any deficiency. There are parents' clubs, particularly mothers' clubs, in which many of the problems peculiar to a mother or expectant mother are discussed. Young girls in their 'teens who are just blossoming into young ladyhood are given instruction as to the care of their health during this trying period of their lives.

In conclusion, the medical department of an organization is one of its most beneficial agencies. People spend money by the millions and travel miles for health. Most of our industrial plants distribute the means of keeping health or acquiring health as a part of their daily duties.

Safety Department.—Closely allied with the medical department and yet not properly called a social agency, is the Safety Department. This department has an internal and an external part.

The internal part is composed of a committee of people, either overseers or workers, or both, whose duties are to inspect, recommend, educate and safeguard the workers in their various jobs.

This is one of the most expensive and disastrous problems of industrial life. Carelessness and ignorance are the great producers of accidents. Accidents cost money, they cost life and suffering and deprivations and other distressing things of life.

The external part of the safety department is that part conducted by the insurance carrier and factory inspector. These people go into the various plants and inspect and recommend. They lecture and send placards of various natures to be posted within the plant.

It is absolutely necessary that all employees of every kind and class shall properly regard all of these agencies and their activities. They are necessary and perform a service that no other agency can perform. The greater the respect for the Safety Department the smaller the number of accidents there will be, hence the less the suffering and cost to all concerned.

Educational Department.—Another contributing factor to industrial life is the educational department. This department may conduct various activities such as all-day schools, part-time schools, evening schools, conferences for foremen, educational and recreational moving pictures, etc.

There was a time once in industrial life when a formal education was not considered necessary for the plant or the worker. That day has passed. The great demand of industrial life today, is for efficient workers, people who can work with their heads as well as with their hands; people who can understand; people who can think; people with initiative; people who can assume responsibility.

Our school curricula have been reorganized and liberalized and no longer is it necessary for all children to take the same course of study and be pushed along in a lock step method. The schools of today are made for the needs of the children. They fit their peculiar desires and purposes.

It has been decided that intelligent workers are the best. There are great groups of industrial workers today, who have not much formal education and yet they are properly discharging their duties. They grew up in a different period of life, and under different conditions. The industrial worker of today must know more than at any period of our development. The attitude of the industrial community must be one that believes in education and gives support to all educational measures. The school must be the great social agency of the community from which radiates constructional information of all kinds. Churches and schools are the rails upon which the trains of civilization and christianity travel.

In many industrial communities are found the finest and most complete educational equipments and programs of the state. The day schools have the kindergarten, grammar and high school systems complete. Any child in the community can attend free of charge and be taught in better school rooms and by better teachers than in any other corresponding community.

There are in practically every community children or grown-ups who must work some in order to support themselves, or those dependent upon them. They desire more education. For those there have been arranged two classes of schools, the part-time school and the evening school.

The part-time school is conducted so that the child may work during part of the day and go to school part of the day. In this kind of school the children work in pairs. Their education may be continued along the lines of the regular day school, or it may be given a peculiar industrial trend adapted to their job in the plant, or some job which they may desire.

The evening school is intended for mature people, and the instruction given is intended to help them on their jobs, and promote general vocational intelligence.

All people have a tendency to become mechanical in their thinking and acting. For this reason, many organizations have schools for their executives, both major and minor. No one ever arrives at the age of perfection. New blood is necessary for any breed of animals. A college that continually chooses its teachers from its own graduates will set up a system of inbreeding that will ultimately cause its downfall. It is necessary for these men to get other ideas and other methods of doing things. It is equally as necessary for all classes of executives to have their minds orientated occasionally in order that they may come up out of the rut in which they are traveling.

Foreman training conferences furnish a means of doing this. It is not a reflection upon any organization to have this kind of work. It is a reflection on it if it does not have it.

All members of an industrial community must appreciate the educational program and cooperate in its execution, as it is the great builder of men.

The moving pictures which are now an integral part of the educational program of most plants generally consist of many types of pictures. Comics and recreational films, which produce laughter and relaxation; fiction and historical films, which educate the mind in cultural knowledge; current events, which keep people in touch with present day happenings and problems; travelogues; and last, but not least films of various industrial operations.

The world is brought to our door and we can see and be in almost any condition we desire. It is impossible to estimate the value of moving pictures, if they are properly selected, and the people who see them are educated to a suitable appreciation of them.

Community House.—The Y. M. C. A., or the Community House, or the Recreation Building is a great cooperative

agency administering to the social advantages of the community.

In connection with these centers, there are physical training classes, troops of girl scouts, boy scouts, camp-fire girls, and all kinds of athletic games. There are nearly always classes in the evening for adults, swimming classes, women's clubs and dozens of other opportunities for the people to express themselves and enjoy social relationships of a constructive kind.

The industrial band is an agency of universal admiration and utility. It is the great center around which many of the various activities cluster. There is something fascinating about band music, it inspires, and invigorates as nothing else can. A nicely groomed band and brisk strains of martial music will call forth many kinds of constructive responses in a group. It is not a fad or an expense. It is a necessity and pays for itself in the activities of both the employers and employees.

Department of Nursing and Dietetics.—The department of home nursing and dietetics is one of value. So many people are sick and remain sick for want of proper attention. This is a fact of general application. So few people know how to care for their own families when they need special care.

Industrial organizations do not have these departments because they feel that their employees need them more than other people. They maintain such a department because private organizations are more efficient than public organizations. They realize that illness or poor health is a drain upon society, individually, and collectively. They desire that their communities shall be as free as possible from disease and distress, that their people shall be as healthy and happy as possible. Healthy and happy people are good citizens, good workers, and have a greater chance to become economically independent.

This is a world of mutuality and reciprocity. We cannot help other people and not help ourselves. We cannot harm other people and remain free from its reactions. Many organizations may have started these social agencies from selfish desires and motives, but no longer are they in the foreground. The fact of making people, of producing happy and efficient citizens has so many more rewards, that in the minds of many presidents this stands in the foreground. The question of making money is only a means to an end. One big mill owner said that since he had begun an active campaign to build people, that his production had increased, and the general returns on his investment had been larger than at any time during his career.

There are very few social agencies that do not have as their motive the interests of the work first.

Organized Play.—Playgrounds, playground activities, inter-departmental sports; games between other kinds of organizations—all of these, have a broadening and helpful socializing influence on, not only those who partake actively, but those who are present as spectators and rooters.

In this period of commercialism, of hurry and hustle, many people have forgotten that the greatest work of God is Man, that the only thing worth while in life is Man, that he who is and will be counted greatest, as the days pass by, will be the one who has done the greatest service to *man.*

All of the agencies mentioned in this discussion are agencies of service. Their primal purpose is to build a strong, sturdy, economic, happy class of people with visions of power and capacities to accomplish.

The day of oppression and extortion has passed. The creed of today, is that we shall live with people and for people, rather than on the ignorance and dependency of people.

I am not intending to preach a socialistic or communistic doctrine, not even paternalistic in the foregoing statements. The great fundamental economic principle is that rewards shall be in proportion to the services rendered. The activities and ideals of life have become somewhat oblique for many people. It is therefore necessary for those who are able mentally, morally and financially to help the people who work for them to get a clear perspective of life and then help them to get in the proper attitude to advance.

Social agencies are necessary in every plant of any magnitude. The modern factory system, with its highly specialized departments and activities, the deadly dull monotony of daily routine, makes life so artificial that special effort is necessary in order to bring people back into the proper social balance to properly discharge their civil and domestic duties.

Know People. "It was not good for man to be alone" —was recorded early in the writings of the old testament. That is true today. People need to know each other, to rub elbows with each other, to be recreated in an environment that drives away the cares of industrial life. The cells need to be repaired and energy needs to be generated back to normal.

People need to live in the vigor and splendor of active able bodies and minds, of accomplishment, of appreciation and respect of friends, of worthwhileness to their organization and their communities and their families, and then leave to posterity a better place than they found, and a greater heritage than they received.

Social agencies acting in their real capacities and plans, will help do these things. Something more is necessary, however, than the form. If we would have man-building powers in industry, we must have man-building men with man-building philosophies in charge of our industries, and in charge of our social agencies. We must have men who know men and can administer to them in a way that brings out the best.

The Production of Cotton, by Gilbeart H. Collings, B. S., M.S., Ph.D., assistant professor of agronomy, Clemson Agricultural College, 256 pages, 92 figures. Price, $3.50 net. John Wiley & Sons, Inc., 440 Fourth Ave., New York City, publishers.

This book was prepared largely to satisfy a need in southern agricultural colleges for a college textbook on cotton. It is the outgrowth of a series of lecture notes used by the author in cotton courses at Clemson during the last eight years, amplified by other information bearing upon the production of cotton. It discusses the botanical and other classifications of cotton, its culture, fertilizers, diseases, insects, harvesting, ginning and baling, warehousing, marketing and transportation of the fiber, as well as breeding, etc. By-products of the cotton plant are discussed, and a chapter is given to the history of cotton production in the United States. The book contains a number of valuable tables on cotton production, etc. On the whole, it is a comprehensive treatise of the subject, and thoroughly accomplishing the purpose of the writer.

Bleaching Cotton With Soap

BY W. B. NANSON

The bleacher of the present day is entirely freed from all thoughts of the troubles he used to have in the old days of grass bleaching; the various hypochlorites have been introduced to take its part on the grass and the boiling is largely done or helped by the various oils, soaps or assistants used in the boiling off as well as the various enzymes or bacillii used in the steeping of the goods.

Improvements have been made both in the mechanical and in the chemical sides of bleaching in the past few years; so it is with cops, it was the introduction of machinery that enabled them to be satisfactorily bleached, both as to quality, quantity and cost; and all loose cotton material is usually bleached now by pressure and vacuum, or by pressure and circulation, which is better.

So it is with all yarns, the old practices are done away with of using small tubs and the present system of steeping in diastofor in large kiers, boiling in castor oil soap and caustic in the same kier, washing and chemicking with hypochlorite of soda and castor oil soap and washing in the same kier and dyeing in the tubs are mostly used.

A difficulty was always experienced with large kiers and that was the formation of runs or channels, especially at the side of the kiers, and it was usually by means of this run that the bulk of the boiling medium or lye passed so that the rest of the goods in the kier missed the action of the lye. This may be overcome by filling in the liquor always from the bottom and allow to stand a little time first, two hours, or over night in the diastofor liquor, then run off, then fill the liquor from the bottom in hot caustic and a little finishing paste which must be made from castor oil, let lie about an hour then circulate for six hours or longer; then wash, etc.

The same principle is much used in cop dyeing; the material is packed into wicker baskets or sometimes bags made of hemp, these are placed or packed into ordinary bleaching kiers in which they are steeped and boiled or in some places the steeping is not employed and the goods are simply boiled, under pressure of 10 to 15 pounds for six to ten hours, in either case they should be filled from the bottom and allowed to lie as above; the *diastofor liquor* must be cold, not over 110 degrees F., and without pressure, the caustic soda liquor must be hot, and after lying at least one foot above the cloth, must be boiled as above.

It is customary also to use apparatus of various kinds to bleach cops, in it the goods are tightly packed in boxes and the various solutions are forced through by pressure, for instance the "Obermaier" system may be used.

In either case it is far preferable to use sodium hypochlorite as the bleaching medium and not bleaching powder. In this case the cops are much better and more evenly penetrated by the liquor and they require less or no souring.

Great care has to be taken in bleaching loose cotton to avoid felting. In this case the cotton is not boiled but only steeped in enzymes for two hours at 110 degrees F., and then in caustic soda or soda ash at about same heat for five or six hours using a strength of 2 or 2½ degrees. It is then rinsed and bleached at about 1 to 1½ degrees, preferably by hypochlorite of soda. No souring is required. I may say here that it is customary to use chloride of lime at 1 or 1½ degrees in bleaching and sour with sulphuric acid at the same strength and finally wash, but all of this is unnecessary with hypochlorite of soda as a bleaching agent.

In bleaching loose cotton, troughs may be used or the cotton may be slowly moved in the liquor and in all of these cases the machines may be constructed of an alloy of nickel.

A method of bleaching cold, but not a full bleach, may be used for special purposes as follows: Cheeses, cops, (yarn in hanks) are packed in an iron box, built on purpose, and the spaces are all filled with loose cotton and bleaching powder solution at 1-1½ degrees Tw., is circulated through the goods for four to five hours under a pressure of 25 to 30 pounds. Washing, souring with hydrochloric acid and a final washing is all—no boiling. A mixture of sodium hypochlorite and any castor oil soap is far better for cops and cheeses or loose cotton. This requires no souring and little washing.

Bleaching Cotton Yarns and Warps.

As regards the bleaching of cotton yarns and warps, I will give first the present way. In the first place before bleaching the yarns in hanks have to be laced, they are then made into chains of about 120 pounds each by linking or tying them together. Warps may be made into chains by a machine with a motion like a crochet needle, anyhow these chains are run like cloth *i.e.*, end to end like piece goods. Sometimes they are handled by hand in ten pound bundles.

They are first boiled in either high or low pressure kiers for about five or ten hours in such a way that they are thoroughly covered so as to prevent them from coming in contact with the air which would make them tender and stained.

After boiling and after the liquor is run out, they should be washed in the kier first in hot water and then in cold and then bleached in cisterns in the usual way with bleaching powder solution, washed, soured, washed, etc.

The following average quantities are given in Hubner for 100 pounds of yarn.

They are first boiled for five or ten hours in 2½ to 3½ pounds of soda ash or caustic soda; at some works they use 60 percent of soda ash and 40 percent caustic soda. Washed in the kier, first in hot water, then in cold water and then wash through the machine into the chemic cistern.

We would say right here that it is a decided advantage to give a slight souring and washing at this point, especially in the case of Egyptian cotton yarns or other hard twisted or dirty yarns.

The bleaching or chemicking is conducted in a cistern with bleaching powder solution at 1½ to 2½ degrees Tw. for three or four hours. The yarns may also be bleached in a short time on sticks, in the latter case the liquor should be warm, say 100 degrees F. In washing, the goods should be run through the washing machine and washed from the kier, through the chemicking machine and chemic into the cisterns which should have false bottoms of "slate" or wood.

Wash in the cistern, after bleaching sufficiently, for about one hour.

Sour in the same cistern, if possible, for one or two hours with either sulphuric or hydrochloric acids at 1½ to 2 degrees Tw. Wash in cistern and then in machine and finally pass the yarn through a weak solution of soap and soda to which is added the blueing. It may be necessary to repeat the chemicking and souring, if good whites are wanted.

Egyptian and other hard twisted yarns are nearly all bleached twice, *i.e.*, they are nearly all boiled twice, first in caustic soda, then again in soda ash at 2 degrees Tw., in both cases; if however, the yarn is to be used for dyeing, soda ash should be used for both boils, for all yarn that is boiled with caustic soda is quite apt to give uneven shades in dyeing.

These goods should show a greater tensile strength after bleaching than before.

The goods (yarns and warps) may be washed by hand or by machine, if in bundles, and hydroextracted and dried in the usual way, but in nearly all cases the goods are bleached as above *i.e.*, boiled, soured, washed, bleached with chloride of lime, washed, soured, washed, hydroextracted and dried. In many cases this is all right but I prefer, as far as yarns and warps are concerned, to steep first in some enzyme for the 2 hours or more, then boil under pressure, (60 by 40 soda ash), then wash in two waters, hot and cold, then steep in hypochlorite of soda, four hours at 1 degree, then wash, hydroextract, and dry. It may be necessary to run off the sodium hypochlorite without washing and sour in acetic acid, using about one quart to each 100 gallons, circulate about one hour and wash as before. In any case chloride of lime is used and can be used on yarns and warps, although it is not a good thing to use on account of the lime it contains, this makes yarns harsh and easily broken and it also finishes much lighter than the soda.

Bleaching Piece Goods.

As regards piece goods—hypochlorite of soda is usually considered too expensive and the writer quite agrees with this though for full-width bleaching, especially if the goods are for dyeing, or, for soaking in an alkaline lye and steaming, or, for goods that have to be finished specially soft for any purpose the hypochlorite of soda bleach is the correct thing.

There are at least three ways in which cotton fabrics may be subjected to the action of sodium hypochlorite or rather in which the hypochlorite may be made. In the first place electricity has of recent years been called in aid for the bleaching of textile fibers, in this case the continuous current is used.

In the electrical bleaching methods now employed the aid of electricity is indirect, inasmuch as the current only comes in contact with the bleaching liquor. The sole difference between the various methods consists in the construction of the apparatus in which the bleaching liquor is produced. In these electrical processes a solution of common salt is subjected to the action of the current and is then used as a bleaching liquor. The effect of the passage of the current is to electrolyse the sodium chloride, chlorine being formed on one hand, and sodium (or rather caustic soda and hydrogen) on the other, the chlorine dissolves the aqueous brine and is combined by the caustic soda, and the hydrogen is used for other purposes.

When chlorine is allowed to act on caustic soda lye in the cold a mixture of sodium hypochlorite and sodium chloride is formed. The same occurs during electrolysis; and as is known that the efficiency of a bleaching liquor depends on the amount of sodium hypochlorite present, the chief point aimed at in electric bleaching is to produce a powerful liquor.

It is only for laundries or those bleaching small quantities of goods that the electrical bleach is advised on account of cost but to those owning sufficient water power, especially night waste, that can produce their own electricity for 1 to 3 cents per killowatt hour it may be used to advantage for all purposes.

Preparing Sodium Hypochlorite.

Sodium hypochlorite may be made also as follows. Mix 100 pounds of bleaching powder with about 40 gallons of water (cold). Dissolve 60 pounds of soda (98 per cent Na_2CO_3) in about 20 gallons of hot water and then add about 10 gallons of cold water. Add the soda solution to the bleaching powder paste and stir for about half an hour. Allow this liquor to settle for about 12 hours and draw off the clear solution, wash the precipitate with cold water three or four times and add the clear wash water to the hypochlorite solution which, when diluted to about 150 gallons, ought to show a specific gravity of 6 to 7 degrees, one or two pounds of dissolved soda ash then added to this solution will precipitate the remaining lime. The solution to be fully stable should react slightly on the alkaline side. It certainly must be alkaline if Turkey red oil or Monopole soap is to be added, therefore the bleacher must see to this; he must also bear in mind that too much alkalinity will prevent it from bleaching and too little will prevent it from keeping; this applies to all hypochlorites and must be seen to. If it is too alkaline it may be modified by acetic acid and if too acid, so that the oil will not mix, the addition of the necessary amount of soda ash, previously dissolved, will bring about the requisite alkalinity.

Liquid chlorine is now largely manufactured and used in the preparation of bleaching liquor by conducting the chlorine gas into milk of lime or by passing it into caustic soda lye. If the latter process is used the bleaching liquor should not be allowed to become neutral but should always remain slightly alkaline or decomposition will set in rapidly. I should recommend the following formula so far as proportions go:—10 pounds 58 per cent soda ash, 4 pounds caustic soda, 74 or 76 per cent, dissolved in a barrel in 40 gallons of cold water, and to this run in slowly 5 pounds of liquid chlorine in the container, this container is placed on a platform scale and the weight set accordingly. Care must be taken not to run the chlorine too fast, if this is done, the expansion of the gas at the valve has a refrigerating action causing the liquor to condense and "freeze" on the inside. If this occurs, it can be thawed by heating the valve and the pipe passing it from the package with cloths wet in hot water. One hour can be allowed to run five pounds out of the container, although many bleachers run the chlorine out faster than this, but a speed of five pounds per hour is enough to be safe. The soda solution should be cold and if caustic is used it is well to have it cooled off before the chlorine is introduced. The reason for this is that when the temperature gets much above 70 or 75 degrees F., the hypochlorite which is formed by the combination of the chlorine and the soda begins to decom-

pose and the bleaching strength is low. This is liable to occur when the chlorine is introduced too rapidly and we would advise using a thermometer to watch the temperature. Care must be taken that the hypochlorite does not come in contact with iron at any point, as it not only attacts the iron but it decomposes itself very quickly in its presence. In all pipes and connections rubber may be used but lead is better. The receiving tank itself should be of cement. The chlorine should be fed into the soda at the bottom and as fast as it may be absorbed without *bubbling* to the surface or raising the temperature above 20 degrees F. Should this occur it shows that the chlorine is coming too fast to be absorbed, therefore the tank must be deep on this account.

Many bleachers use soda ash alone for making up the hypochlorite in the proportion of 17½ pounds of soda to five pounds of chlorine and forty gallons of water. This however, is not recommended, as it makes a rather unstable hypochlorite which decomposes quickly and must be used at once. It is all right, however, for small lots which are used with acetic acid and other assistants and then thrown away. It is better, too, if kept dark, as light causes the hypochlorite to deteriorate. It gives a softer and whiter bleach than chloride of lime and requires less souring, or none.

Long ago Hertel patented a process in which Turkey red oil was used for the first time; he used this process on yarns to be dyed: He first soaked the cotton in Turkey red oil and dried it, then boiled it for six hours at 30 pounds pressure with caustic soda lye, soured, rinsed, soaped at the boil, rinsed and dried.

This process gave with American cotton a bleach good enough even for dyeing light shades, but with Egyptian cotton the whole series of operations had to be repeated. The characteristic feature of this is that no chlorine is used, which made the bleached goods especially suitable for Turkey red.

Many processes have been tried at various times and are doubtless suitable for certain classes of goods, but for every day work there is nothing like the caustic soda boil and the hypochlorite of soda bleach for soft work, and the madder bleach, *i.e.*, lime boil and the chloride of lime bleach, for hard or ordinary work. Again there is the steeping in enzymes, the boiling in soda, the souring and the chloride of lime and sour and wash bleach for dyeing and some other bleaches.

These and the forgotten methods, however, paved the way for the new method which consists in treating the fabrics with alkaline mixtures of the hypochlorites and Turkey red oil or castor oil soap. This process results from an attempt to prevent the evils connected with scouring, that is the occurrence of over and under scoured places which are particularly common in spools and cops bleached by machinery, as they can not be rinsed. To see what the action on insufficiently scoured places would be, unscoured dry materials were treated direct with sodium hypochlorite with various additions.

It was found that the additions of Turkey red oil or castor oil soap were far more effectual than those of ordinary soap, glycerine or alcohol, although the latter penetrate the more easily. The point seems to be that although the Turkey red oil or castor oil soap mixtures osmose less freely (in this case read diffuse), their ingredients remain together in doing so, while the others are separated by the osmosis, and the advantage of their co-operation is lost. Another most important fact was also noticed at the same time. While the woody and heavy exterior of the fiber is only softened and darkened but not removed in scouring, becoming a pale yellow in the bleaching bath, and remaining until it is dislodged mechanically during the subsequent rinsing, it is disintegrated at once in the cold hypochlorite plus the oil or castor soap bath.

The bleaching baths made up this way do not require much oil or soap and can be used for months if reinforced. No souring is needed, and in most cases no washing, or perhaps a light sour in acetic acid to finish and clear the whites. No oxycellulose is formed and no fatty bodies are left in the goods. As regards the strength the goods bleached by the oil process are usually 10 per cent stronger than the raw stock and 10 per cent heavier than those bleached in other ways which pays for the extra dyestuffs, then again they are softer and more easily worked which is the great disideratum.

Again, while the lye, in the usual process, becomes of a dark brown color, the soda oil bath remains comparatively clear and colorless, showing that the goods are not only heavier but that the coloring matters of the motes is destroyed as well as loosened, being probably oxidized into carbon dioxide, as that gas escapes with effervescence when a repeatedly used bath is heated. This thorough oxidation consumes more chlorine than is required after a preliminary scouring, but sized yarns can be put direct into the bath.

It must be remembered that about 80 pounds of sulphate of soda will convert 100 pounds chloride of lime into hypochlorite of soda and make the goods heavier (if not washed) than soda ash, but it must be used at once as it is not alkaline, though ash added afterwards will make it so. Again, it may be said that glaubers salt makes a better bleach. We would also say that acetic acid, common salt, chloride of magnesia, epsom salts or any other assistant added to the chlorine bath, either the lime or soda bath, does so at the expense of the chlorine, it may hurry the bleaching for the time being but the ultimate result is the same in all cases.

It has been shown that for all ordinary cottons, good boiling is the cheapest way of getting rid of the impurities of the cloth, this and steeping in some enzyme, such as diastofor, and it is the only way of procuring a good permanent white.

There are many advantages in using sodium hypochlorite, especially when castor oil soap is mixed with it, the addition of castor oil or Turkey red oil has a strong capillarizing action and that the bleach rapidly penetrates the fibers and that perfect bleaching is effected without the intervention of the lye boil and at the ordinary temperature. The general advantages of this method are as follows: The doing away with boiling or steaming and the consequent saving of time, labor, steam, materials and apparatus; the fiber is less affected and the goods are heavier and stronger and all the faults connected with boiling are avoided. The general disadvantages are that it takes more chlorine and is usually dearer. It is good for cops, cheeses, raw cotton, yarns or anything that is wanted in small quantities or anything that is wanted quickly or anything that must be kept straight, or without handling, or soft. It may be used either with or without oil or soap but oil is better. All piece goods that are wanted soft must be

boiled in 60-40 caustic soda (after steeping) and chemicked in hypochlorite of soda and no souring and little washing is required in most cases. If they are wanted entirely clear of chlorine each truck load may be tested by the starch-iodide solution, an indication of chlorine is a blue coloration on the cloth by the solution. The following is the make-up recommended for the hypochlorite solution and oil: For 220 pounds of cotton in the shape of cops, etc., 115 gallons of a solution of hypochlorite of soda with a percentage of 0.3 per cent of effective chlorine, if this is alkaline enough, then add 2½ gallons of Turkey-red oil of 75-80 per cent (or castor oil soap), let the goods lie in this about two to three hours and then wash out.

The writer has tried all ways of bleaching, and while the hypochlorite of soda with oil has its advantages and may be used with raw cotton, cops, cheeses, yarns and piece goods and all goods wanted soft and heavy (in some cases the extra weight will pay for the extra chlorine) it is not good for piece goods as it costs too much, neither is it a good thing for 3 and 4 linters and similar dirty goods. All such goods require boiling and cleaning first and chloride of lime is the cheapest thing to use where goods are simply wanted white; if goods are wanted soft then hypochlorite of soda, with or without oil is indicated.

Finishing Shirtings for India

BY H. R. BAND.

Finishers who wish to compete successfully in the Indian market should ascertain, if possible, what the finish is that is in demand at the time. Fashion, within certain narrow limits, varies in India as it does elsewhere. The merchant should be requested to furnish a sample cutting of finish from his Indian client.

When catering for the Indian market, finishers in England have an easier task in some respects than the finisher on the spot. English cloths are more uniform, labor is more skilled, and there is a greater variety of drugs and finishing materials to choose from. The Indian finisher, however, has the advantage of knowing his market at first hand.

With pure cloths, competition is more difficult, as the best finishing machinery on the English and Continental markets is to be found in the Indian mills and finishing works, and there are also highly skilled men among the finishing managers.

Goods finished in England gain in one respect—a passage across the water. Provided the pieces are finished correctly, this conditioning process works a decided change in their appearance—a bottom luster is given to the calendered surface, and a stiffened goods becomes mellower to feel. This softening effect does not apply to pure finished goods, nor to good bodied cloths lightly stiffened, but to the heavier filled variety.

The great change in the atmospheric conditions between the dry and the monsoon seasons, shows particularly in heavily filled cloth, a firm finish in the dry months becomes mellow during the rains, and a mellow finish becomes limp under the same conditions. For this reason it is advisable to keep filled goods for India on the firm side, unless their ultimate destination is definitely known.

When filled cloth becomes limp the back is loosened somewhat, and Bombay merchants, for instance, are quite alive to the fact. They have a way of testing a filled piece in the following manner: They take hold of a few inches of a lap, between their finger and thumb, and drag them over the cloth, and note if any clay has come away; or they lift a piece up and bang it on the table, and again note if any of the clay dusts off. If it does, it gives them something to talk about when negotiating for better prices.

Generally, they know what they want, and one cannot always hoodwink them in the same way that I once saw a Manchester merchant imposed upon. He had come up to the works with complaints regarding a certain finish. The manager ordered a batch to be finished while the merchant waited. In due time a piece was brought up to the warehouse for his inspection—everything was wrong with it. Some fresh pieces were ordered to be finished in a different way. After a lapse of some time, another piece made its appearance. This time it was much better—a different thing altogether. The manager did not think it necessary to inform the merchant that it was a second piece off the first batch that was finished. Of course, that was many years ago, and I am sure such practices are not carried out at the present time.

The excessive humidity of the monsoon provides an atmosphere suitable for the growth of mildew, thus the filling ingredients should be carefully chosen—calcium chloride and glucose should be avoided, and if magnesium chloride is used, sufficient zinc chloride should be used to act as an efficient antiseptic.

The safest deliquescent is glycerine, but a little goes a long way, and too much is objectionable. A factor which has to be considered when using this commodity is its price. A crude commercial quality answers the purpose very well, but glycerine substitutes which consist of chloride of magnesium and glucose must not be used if the object is to avoid mildew.

A point to be remembered is that most of these shirtings are worn next to the skin. Therefore, during the back-filling, skin irritants should not be used. Starches china clay, mercine glaze, oleine oil, neutral soaps and glycerine are safe. The same cannot be said for magnesium chloride, zinc chloride, calcium chloride and alkaline mixtures.

The oleine oil should be of good quality, and free from rancidity, or the smell issuing from the finished goods when they are stored in the Indian warehouses will be vile.

Mercine glaze, and similar preparations by reputable makers, are useful softeners for bleached goods, and enter largely into Indian back-filled finishes. They are free from smell and assist the calendering.

Castor oil soap has good softening properties, and there are several reliable soap softeners on the market.

Maize starch is a very serviceable starch for back-filling mixings, it binds well and does not boil up too thick.

Farina, or potato starch, when freshly boiled gives a thick, highly adhesive paste which binds well. It gives on standing. The writer found a mixture of farina and maize starch very useful for back-fill mixtures.

Sago should not be used for whites on account of its color, but with tinted goods which have to be back-filled

it is useful when mixed with other starches and fillers.

White dextrin in conjunction with starch and a little clay is valuable for back-filling tinted shirtings.

Each finisher swears by his own tinting blue, but the writer has found Edge's tinting blue, green shade, to work well with heavy clay mixings.

Those who are out to show some sort of enterprise might avoid all kinds of animal fats in their stiffening preparations in goods destined for the Indian market, and apply a small show ticket guaranteeing the same. Hindus are particular on this point and avoid soaps which have been made from animal fats.

Certain Indian mills which are successful in producing cloths that take a good back, and find a ready market, use considerable waste in their weft. It is rather spongy and flattens well under the calender.

There is no reason why other manufacturers cannot compete with a measure of success with these lower grade cloths. Such figured and striped shirtings as the writer came across when in India were of a superior grade and more or less pure. They did not enter into competition with the lower class goods.

There is an idea in some quarters that cloth heavily filled with starch and china clay is a species of fraud, as the goods are sold for cotton. Anyway, the filling of cotton had the sanction of Hindu Holy Writ a few thousand years ago as Manu says: "Let a weaver who has received ten pallas of cotton thread give them back reduced to eleven by rice water and the like."

However, the back-filling processes of low Indian shirtings changes a fabric looking like a rag into quite a presentable material, and as starch and china clay are cheaper than cotton, the cloth is sold at a cheaper rate, and poorer people are able to buy it, who otherwise might have to do without. Moreover, the coolie class who wear shirts made of this cloth rarely wash them, and the starch or China clay keep them warm or cool, as the case may be.

An average back-fill 90 gallon mixure is the following:—

85 lbs. maize starch.
30 lbs. farina.
15 buckets china clay (4 lbs. per gallon).
2 gallons Mercine glaze.
1 quart oleine oil.
½ gallon resin size.
1 quart glycerine.
Blue, as required.

This mixture is made up as follows:—Just cover the bottom of the boiling tub with cold water. Mix the maize starch and farina with as little water as possible, and pass through a sieve into the tub. Then with constant stirring add the china clay paste. In succession add the Mercine glaze, oleine oil, and glycerine. Assist with a little water if they will not pass through the sieve. The resin size must be boiled up with water in a bucket under a steam pipe, and added next. Finally add the blue, and if water is required fill to within five gallons or so of the 90 gallon mark. Boil up with direct steam, as this makes a more homogeneous paste than when indirect steam is used.

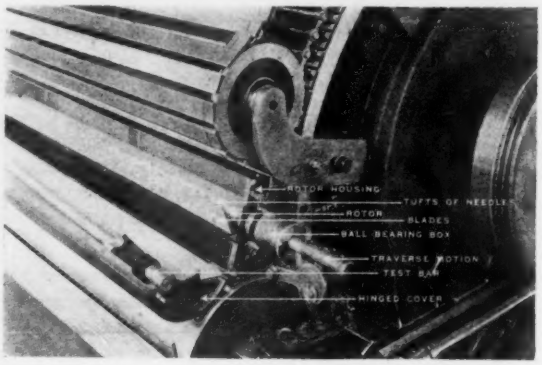
It is needless to add that any condenser water standing in the pipe must be blown off before commencing boiling, otherwise the bulk of the resulting mixture will be considerably increased. A few mixings must be made before the correct amount of water required can be accurately gauged.

This mixture gave good results on a Riley back-filling machine. The recipe would have to be modified according to the nature of the cloth, and the make of the back-filler.—*The Dyer and Calico Printer.*

A Continuous Card Stripper.

An interesting device, known as a continuous card stripper, which provides for carding cotton without stripping the cylinder in the usual way, is being marketed by The Belger Company, 227 California St., Newton, Mass. The device is attached permanently to the card, it is pointed out, and eliminates the use of the intermittent stripping system.

The system is shown in the accompanying illustration attached to the feed end of a Whitin card, above the licker-in and below the flats, just where the cotton first comes into contact with the cylinder. The stripper roll is a rotor with two blades extending over the whole width of the card. Fixed thereon are needle segments carrying a total of about 300 needles, grouped in bunches of three or four each. The rotor and needles are enclosed in a dust-proof housing of cold rolled steel with hinged cover, exposing the working parts when opened. The two blades travel in the direction of the cylinder clothing and dig into



it to the extent of 3/64-inch to 1/16-inch, and also have an additional circumferential speed of ten to fifteen per cent. A slight to and fro motion is imparted to the rotor by the traverse motion shown, thus allowing all parts of the cylinder clothing to be reached.

The needle segments on the two rotor blades come in contact with the cotton on the cylinder clothing, giving it a so-called "pile," and lifting it on the surface of the cylinder clothing. Thus, it is pointed out, the flats are in a position to catch the cotton fibers much better, as the fibers are on the surface of the cylinder clothing. It is pointed out that this results in a better carding action, many short fibers and much dirt being separated, so that the cylinder clothing cannot fill up. The peculiar action of the rotor, it is stated, causes the cylinder to keep in a continuously clean condition, and eliminates entirely the stripping of the cylinder in the usual way.

General improvements consequent upon the elimination of the usual method of stripping are claimed for this device. These include increased production because of the fact that no interruption is necessary for stripping; saving of labor; improved carding by reason of a continuously cleaned cylinder; more even sliver; less waste; elimination of dust; and a cleaner yarn.

MATHIESON Chemicals

Mathieson Traffic Service

THE complicated industrial structure of today has made transportation one of the foremost problems with which industry has to contend. Export traffic counsel has become essential to the prompt and efficient handling of freight movements.

In the chemical-consuming industries in particular, where highly technical materials are dealt with, the traffic expert is indispensable. Yet the average user of chemicals is but poorly informed on traffic matters and comparatively few can afford to maintain a traffic department of their own.

It is for this reason that the Mathieson organization includes a full staff of traffic experts for the service of all customers. Questions of freight rates, routings, tracing and expediting of shipments, claims against carriers, etc., are all handled for Mathieson customers by our well organized Traffic Department. Our staff welcomes the opportunity of assisting customers with their traffic problems and is on the alert at all times for traffic changes which might affect their interests, whether or not such changes have any direct connection with Mathieson products.

Consumers should give careful consideration to the advantages of Mathieson traffic service before seeking a source of supply elsewhere.

The MATHIESON ALKALI WORKS *Inc.*
250 PARK AVE. NEW YORK CITY
PHILADELPHIA CHICAGO PROVIDENCE CHARLOTTE

Caustic Soda ~ Liquid Chlorine
Bicarbonate of Soda
Anhydrous Ammonia

Soda Ash ~ Bleaching Powder
Modified Virginia Soda
Aqua Ammonia

Deal Direct with the Manufacturer

What the Southern Mills Are Doing

An automatic hydroelectric generating station soon to be installed by the Bibb Manufacturing Company, a textile plant at Porterdale, Georgia, will be designed to operate in parallel with the Georgia Railway & Power Company system, will generate power for the Bibb plant and will improve poor power factor conditions at this point. The type of control used will be the first of its kind to be put in operation in this country. The equipment will include two vertical waterwheel-driven generators rated 1500 kv-a., 750 kilowatts, 240 r.p.m., 2300 volts; three 38,000/2300-volt transformers, and a complete automatic switchboard. All the electrical equipment will be furnished by the General Electric Company, who evolved the method of operation. The water power was formerly used to furnish mechanical power from horizontal wheels, and this old station will now be shut down. In tying in the automatic generating station with the public utility system, the 2300-volt bus will be connected to the 38,000-volt system through the three single-phase transformers connected delta-delta.

With the object of supplying as much leading or corrective current to the system as possible, a constant-current regulator will hold the full load of 1500 kv-a., on the generators, in contrast to the usual practice of maintaining constant voltage. It is expected to improve the plant power factor by this method from 77 per cent to approximately 85 per cent.

Power for running the Bibb plant will come from the public utility lines in parallel with the automatic generating plant. The two hydroelectric generators will operate automatically in sequence and will be governed by a float switch located at the forebay. At the minimum water level, one machine only will run, its entire output being made up of 1500 kv-a. leading, thus having a maximum corrective effect on the system. As the water level rises, the actual energy load on the generator will increase and the supply of loading kv-a. will decrease until, at the maximum load point, the 1500 kv-a. output will be made up of 750 kilowatts actual energy at 50 per cent power factor, thus leaving 1300 kv-a. for corrective purposes.

At this point in the cycle, the second generator will automatically start, going through the same cycle until—providing the water level rises sufficiently—the two machines will be furnishing a total output of 3,000 kv-a. consisting of 1500 kilowatts actual energy at 50 per cent power factor and leaving 2600 kv-a. for corrective purposes.

Thus, during low water periods, the prime movers will furnish as much energy current as the available water supply will allow, and, at the same time will always furnish leading current for improving the plant power factor. The machines will run automatically under all normal conditions and will shut down automatically in case of trouble.

* * * * *

Application for a charter for the erection of a plant to manufacture braided cord has been made by John T. Carroll, Sidney B. Whittier and others, who will operate the plant at Chattahoochee, Ga., where the Whittier Mills, with which the new company is affiliated, are located. Modern braiding machinery will be installed in the building, the first unit of which will contain 65,000 square feet of floor space. The control of the company will rest in the Silver Lake Company of Massachusetts, manufacturers of Silver Lake brands of braided cord. The Whittier mills have been supplying the Massachusetts concern with yarn for braids, and it is understood the new Georgia plant will secure its material from this source also.

Morris & Company, Inc., of Groveville, N. J., have now completed arrangements for the moving of 10,000 spindles and the preparatory machinery from Groveville, N. J., to Morrilton, Ark. The new mill in Morrilton will make tire fabrics and mechanical ducks. A new company will be formed, which will be known as the Morrilton Cotton Mills, Inc. The sales will be handled from the Groveville office of the company as at the present time, together with the sales of other mills for which they are at present handling the product. The mill at Morrilton contemplates a building one story high. Power will be furnished by the Arkansas Light & Power Company. This is the first of several mills planned by Morris & Company, in the same section, it is stated.

Considerable construction and improvement work is being carried on at the Manchester Cotton Mills, Manchester, Ga. The Barber-Colman system of high speed spooling and warping is being installed, as is a new Parks-Cramer humidifying system and a new lighting system in conduit. Five new 250-hp. boilers are being placed in the boiler room, and a brick addition to the warehouse is practically completed. The reservoir is also being enlarged.

Elberton Cotton Mills, Elberton, Ga., it is reported, will change their dyehouse into a plant for bleaching and finishing toweling and towels.

Klumac Cotton Mills, Salisbury, N. C., have completed a finishing room and are now adding a dyehouse to their equipment.

Osage Manufacturing Company, Bessemer City, N. C., have replaced old looms with 300 E Model Draper looms, and have also ordered new spoolers and warpers.

Additional carding and spinning machinery is being installed at the Statesville Cotton Mills, Statesville, N. C., where a general rearrangement of the machinery is being carried out also.

Warlick Mills, Newton, N. C., have installed 97 looms in their building.

Locke Cotton Mills Company, Concord, N. C., are installing additional cleaning machinery.

A new opening room is being constructed at the Chiquola Manufacturing Company, Honea Path, S. C.

Laurens Cotton Mills, Laurens, S. C., is now operated by electric current.

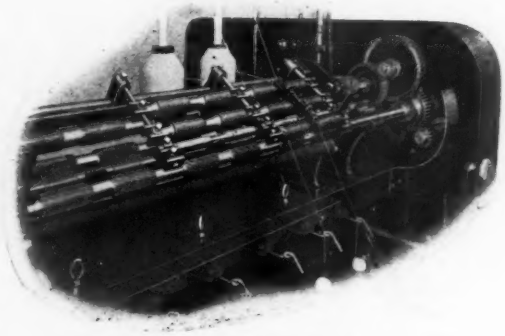
The 100 residences which have been under construction in the village of the Gaffney Manufacturing Company, Gaffney, S. C., have been completed, and make a total of 300 houses in the village.

Riverside & Dan River Cotton Mills, Danville, Va., have ordered equipment to change 12 spinning frames to the Saco-Lowell long draft system, Leblan-Roth patent, and the Avondale Mills, Sycamore, Ala., will equip eight frames in a similar manner.

Russell Manufacturing Company, Alexander City, Ala., have completed the erection of a weave shed where pajama checks will be manufactured.

SACO-LOWELL

LARGEST MANUFACTURERS OF TEXTILE MACHINERY IN AMERICA



Saco-Lowell Long Draft
Le Blan-Roth Patent
(Patented in Foreign Countries. Patent Pending in U. S.)

YOU CANNOT AFFORD

Not to make a thorough investigation and trial of the Saco-Lowell Long Draft (Le Blan-Roth Patent). Experience shows that the radical machine of today becomes the standard of tomorrow.

Saco-Lowell Shops

Newton Upper Falls, Mass.

SOUTHERN OFFICES

Charlotte, N. C. **Greenville, S. C.** **Atlanta, Ga.**

FOREIGN SALES DEPT. Newton Upper Falls, Massachusetts, U. S. A.

The New England Mill Situation.

The situation among New England mills has continued to show improvement. The pessimism of the past two years has passed away to a very great extent among manufacturers and it is gradually disappearing from the minds of investors and financiers. It is going to take some years to restore the morale of the section that existed before it became realized that competition was growing and markets for old established lines were narrowing.

Rapid progress is being made towards restoring a more satisfactory financial status in mills that have been in difficulties. The B. B. & R. Knight reorganization that was foreshadowed within six months of the time that the sale of the properties was made by the original owners, because of the inability to measure the sudden extent of the drop in war values, was completed on the 12th of August at the First National Bank of Boston. The managers of the properties who have been in charge for some years will continue, the managing officer being Col. Buxton, and the directors including Andrew G. Pierce, Jr., head of the American Woolen Co., and the Pierce Mfg. Co., of New Bedford, and F. K. Rupprecht, head of the Consolidated Selling Co., of New York. Six of the many mills, and the Pontiac Bleachery are in excellent condition and have been producing as well and profitably as most of the New England mills during the progress of the preliminary reorganization moves.

Three of the Fall River properties that have been in difficulties for a long time are now being reconstructed financially and will soon be in operation under the direction of new owners. Fall River mills as a whole are now running 75 per cent capacity, the largest degree of activity noted in two or three years.

The Amoskeag Company is making excellent headway in rayon production. It recently opened its lines for the spring season of 1927 and the showing of artistic fabrics of cotton and rayon indicates clearly that this plant has been undergoing a great change physically. There has never been any question of its financial strength, but its managers were slow to accept the ultimatum of fashion that its gingham product could not be sold freely enough to insure consistent profit. It has adopted a policy in the matter of rayon production unlike any other in this country, in that it owns and operates its own rayon plant and has never been at a loss to merchandise the completed products.

The advantage of having fabric mill cooperation in the production of rayon was given a curious confirmation by an announcement to the effect that the Wamsutta mills of New Bedford have accepted the distributing agency for the Industrial Fibre Company in New England. This not only entails the preparation of rayon for any uses a cotton mill may wish to make of it, but insures a grade of practical research work in fabric production that will be helpful to the Wamsutta and to all other users of the Industrial fibres. Somewhat similar work is being done for the Celanese Company by Bliss, Fabyan & Co., of New York, who are selling agents for many New England mills.

The Pepperell Mills of Biddeford, Me., who have an established plant in operation in Alabama, have met with great success in merchandising its new Lady Pepperell sheets and pillow cases and the mills are now running more looms on them than on any other of the widely used Pepperell grades. There are several other mills throughout the section whose products have been vastly changed and whose merchandising methods are undergoing close scrutiny with the object in view of making them adaptable, profitably, to the hand to mouth system of buying that has come to be the vogue in wholesale, retail, and converting trades.

It should not be inferred from these statements that New England mills are on Velvet Street or that there are not many hard days ahead of them. So long as Massachusetts legislation forces mills there to operate but 48 hours weekly while mills elsewhere run up to 60 hours, or day and night without legislative interference, there is certain to be a hard competitive struggle for the Bay State mills to survive. There is still the difficulty of severe local municipal taxation to overcome in this and some of the other states. The bright feature is that the rank and file of New Englanders now concede that they cannot go on legislating and taxing mills out of existence and hope for a retention of industrial effort in other lines.

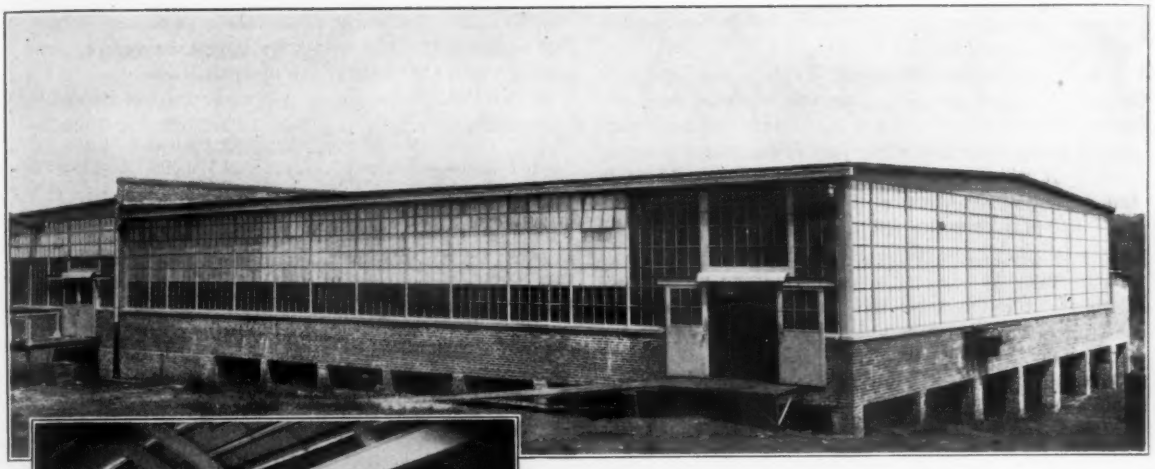
The spirit that has been manifested in encouraging the establishment of a Cotton Textile Institute in cooperation with leaders in the southern industry would never have come to the surface had it not been that many of the leaders among the mill managers have been finally convinced that the South can overdo production as well as the East, and that if both are to thrive they must come together and act unitedly on common merchandising and manufacturing problems.

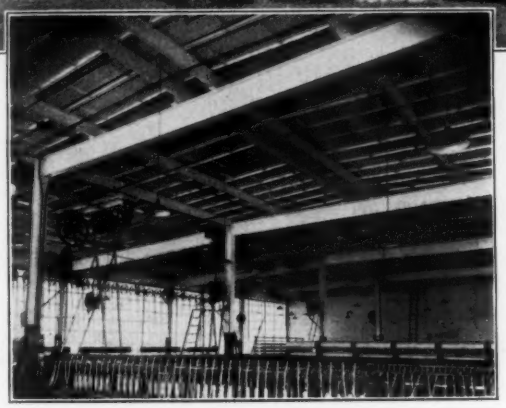
The extent of the diversification of product that is taking place in New England mills along tested lines, is not appreciated in the markets as yet, for the departure from strict cotton mill output affects many divisions in trade outside of those heard of in print cloth and sheeting reports.

The fine goods end of the industry has been undergoing an experience of its own that is becoming intensely interesting. Due to the late spring and summer trade, and to the multiplicity of styles and colors prepared for the season, and the wide advent of rayon mixtures, the strictly fine combed all cotton goods mills found themselves without an ability to secure normal spring 1927 advance orders as far back as last May.

Through the operation of the Fine Cotton Goods Exchange, a cooperative organization to which southern and eastern mills report, the problem ahead of manufacturers of fine and fancy dress goods became quite clear and curtailment of production was undertaken before there were any serious losses forced upon mills by production in advance of demand. The burden of the losses fell upon converters and while the mills shrunk their profits very materially, they did not undergo the great losses that might have ensued had not the danger of overproduction become obvious early.

At present, the fine goods division is running less full than any other single division of the industry. This however, does not entail the loss that would fall upon mills geared only to make plain goods of limited variety. Most of the fine goods mills, especially those at New Bedford, are so elastic in producing capacity that it has been possible to operate some parts of the plants at a profit, while others have lain idle awaiting a revival of market demand. The converters do not yet know what styles are to become prominent and will not order ahead. The mills will take





Whittier Mills Co., Chattahoochee, Ga.
Truscon Standard Building with walls of Truscon Steel Sash and with Truscon Roof of Security insulated against 80 degree exterior temperature change. Average humidity in building 70 with no condensation under roof.

ROOFS OF SECURITY

Either Ferrodeck or I-Plate Roofdecks are suitable for Truscon and all other buildings having a straight-away roof, flat, pitched or slightly curved. Light in weight, fire safe, easily erected, insulated to any degree, low in cost.

Complete Building Service for the Textile Industry

Truscon plans your building for your specific use. Truscon manufactures the building completely from copper bearing rust-resistant steel. Truscon delivers and erects the building for you.

One contract, one price covers everything. You get a durable, non-combustible construction in quick time and for less money.

Without obligation, you can call on us for preliminary estimates and suggestions, for studied reports and recommendations, and for a definite bid on your building. Write or telephone for detailed information and illustrated book.

TRUSCON STEEL CO.
Youngstown, Ohio

Warehouses and Offices in all Principal Cities

TRUSCON PERMANENT BUILDINGS

no undue part of merchandising risks but prefer to allow machinery to stand idle for a time.

Before the current experience is over it will have sunk into the minds of merchants that well regulated mills like those in the fine goods center of the country, will not undertake anything more than a fair part of the risk of carrying stocks. It will therefore devolve upon the merchants to find some way out whereby they will have goods to sell when the time comes to sell them, without throwing the burden of production and stock carrying upon mill stockholders only. This test of the merchandising probabilities ahead of the cotton goods mills is going to be one of the most interesting things to watch in New England for the next couple of years.

The mills did an excellent business in July and early August, but after the Aug. 1 cotton condition was made known there was quite a halt in the demand. While manufacturers will not be averse to seeing lower priced cotton they are not by any means all convinced that a large crop may mean a very low price. Marketing cotton has undergone a great change and the diffusion of money and credit in cotton planting sections is so much greater than it used to be that there is a fear that old economic rules may not be relied upon to make cotton cheap because it is plentiful. Moreover, New England is growing more fussy about the cotton it wants, even in those sections where the manipulation of low grades is something of a science. Grade cotton is likely to command a premium of large consequence even if the yield in bales is high. The carryover is not of a character to insure an abundance of desirable cotton in the early part of the season.

This is the cotton view one hears most frequently expressed by the experienced New England cotton users and it will be seen that it is in many respects quite apart from the views that obtain in speculative raw cotton centers.

The finishers of cotton goods, aside from the large corporation printers, and the bleachers, have had a very poor six months. They are not yet assured of a normal volume of work for job plants for the coming spring season. Were it not that many of them went into very expensive research work to enable them to handle rayon to the best advantage they would have suffered a great deal more than they did.

The machine shops are still characterized by a dearth of business. Loom manufacturers and makers of loom attachments have done rather better than others. There is a considerable amount of renewal and new installation work in old plants going on and many changes of a minor character entailing machinists' assistants are noted in mills where the character of the production is being completely changed.

Cotton Comment.

BY H. AND B. BEER.

New Orleans, August 14th, 1926.

The cotton market ruled comparatively steady the past month, values to-day being only a shade lower than one month ago owing to there being no decided change in the indicated yield, which, on August 1st pointed to a production of 15,621,000 bales vs. an indicated yield of 15,635,000 as of June 25th and 15,368,000 as of July 15th.

According to Secretary Hester of the New Orleans Cotton Exchange the world consumed, of American cotton, last season 15,165,000 bales, the largest on record, comparing with 14,217,000 for the previous season.

WORLD'S CONSUMPTION OF AMERICAN COTTON, BALES.

Season—	1925-26	1924-25
United States—North	2,256,000	2,080,000
United States—South	4,779,000	4,380,000
Foreign	8,130,000	7,757,000
World	15,165,000	14,217,000

The world's carry-over of American cotton, including mill stocks, at the close of July was 5,362,000 bales compared with 2,991,000 at the end of July, 1925.

While the world's carry-over was larger than last year's surplus, much of it is reported to be low in grade and includes 261,000 bales of linters vs. 165,000 last year.

It is evident, therefore, that another large crop will be required for this season's consumptive requirements. Were it not for the British coal strike, which has been on for the past three months, and still continues, it is likely that the world would have consumed more of American cotton last season than reported.

While present crop prospects promise an adequate supply for this season, the crop is still in its growing stage over the greater portion of the belt and has yet to be made.

The passing of the cotton flea has left in its trail a very poor bottom crop, making the trade dependent almost entirely on this year's middle and top crop.

The present outlook for the growing crop, to the east of the Mississippi River, including Louisiana and Arkansas, is decidedly less favorable than at this time last year, but this decrease is expected to be almost offset by the much better crop conditions than one year ago in the important state of Oklahoma and in the premier state of Texas.

Of this year's total acreage for the entire belt of 48,898,000 acres, Texas is credited with 18,948,000 acres, Oklahoma 5,160,000 acres, or a total of 24,108.000 acres, or nearly 50 per cent of the entire acreage of the belt.

Usually in wet years, when the rainfall is generous, large crops are made in the Southwest. On the other hand, in drouth years, when the precipitation is light, the production of cotton in Texas and Oklahoma is generally small.

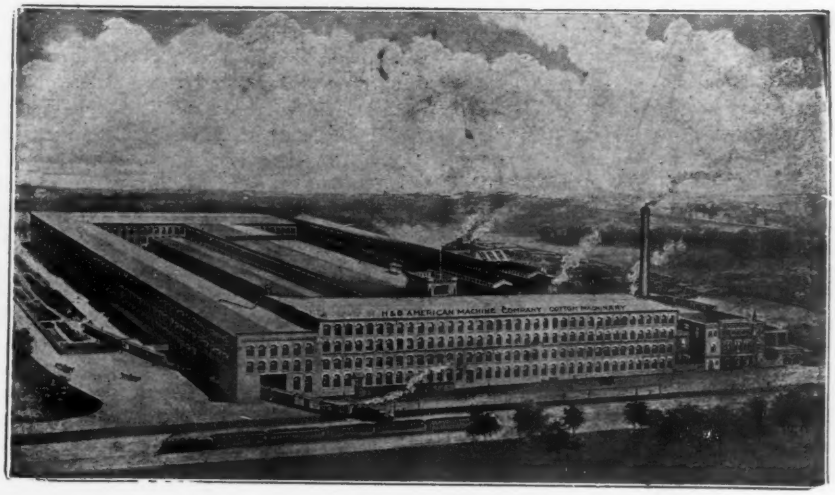
This year there has been an abundance of rainfall in the Southwest, especially in Texas, and for that reason, and because of the enormous amount of land devoted to cotton in the Southwest this year, the trade is expecting much of these important states in the making of cotton.

TOTAL AVERAGE RAINFALL IN TEXAS.

In inches—	This Season	Last Season	Normal
For July	3.94	1.92	2.61
From Oct. 1 to July 31	31.54	13.66	25.63

There is good reason, therefore, for the trade to pin its faith in the probability of a bumper crop in Texas this year, perhaps in Oklahoma also, but the plant is reported to be poorly fruited in many sections of Texas, especially in the north central and northeastern portions of the state, and insects are reported to be more numerous, particularly as to worms, than for the past several years. Moreover, the crop is late in all districts of the state, which applies to all sections of the belt as well, and final results as to the ultimate size of the crop will likely depend on the extent of damage that may be done by insects from now on and by the date of the first general killing frost.

COTTON MACHINERY



WE BUILD

EXHAUST OPENERS—HOPPER BALE OPENERS—CRIGHTON OPENERS
BUCKLEY OPENERS—SELF FEEDING OPENERS
FEEDERS—COTTON CONVEYING SYSTEMS—ROVING WASTE OPENERS
INTERMEDIATE and FINISHER LAPPERS
REVOLVING FLAT CARDS—DRAWING FRAMES (Mechanical or Electrical Stop Motion)
SLUBBING—INTERMEDIATE and ROVING FRAMES
SPINNING FRAMES and TWISTERS
(Band or Tape Driven)
SPINDLES—FLYERS—FLUTED ROLLS

Descriptive Bulletins Sent on Request.

H. & B. AMERICAN MACHINE CO.

Pawtucket R. I.

Southern Office, 814-816 Atlanta Trust Co. Bldg., Atlanta, Ga.

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

WALTER W. GAYLE has been appointed southern agent of the Saco-Lowell Shops, the position vacated by the recent death of Rogers W. Davis. Mr. Gayle is one of the more popular machinery representatives in the South, and has the congratulations and best wishes of his many friends and associates upon his promotion. He has been connected with the Saco-Lowell Shops for a number of years. For the past several months he has been in charge of the Atlanta office of the company. Prior to that time he was in the Greenville office. Mr. Gayle will remove to Charlotte, where the southern headquarters and shops of the company are located.

J. M. GREGG has been made secretary of the Southern Textile Association, filling the position made vacant by the elevation of F. Gordon Cobb to the executive secretaryship at the Tybee Beach meeting in July. Mr. Gregg at the same time was selected to become permanent secretary-treasurer of The Arkwrights, Inc., a recently-organized textile research body. Mr. Gregg is thoroughly familiar with the association work. Until recently he was secretary to Mr. Cobb at Lancaster, and at the same time was assistant secretary of the association. Some months ago he became associated with the Tanner interests at Spindale, leaving his position there to take up his new work. Mr. Gregg will maintain offices in Charlotte from which he will direct the active work of the organizations with which he is now connected.

J. R. PLUNKETT, superintendent of the Ensign Cotton Mills, Forsyth, Ga., has been made general superintendent of that plant and the Hampton Cotton Mills division of the same company. Alvin Wilson now is superintendent at the Ensign Mill, and J. W. Stewart holds a similar position at Hampton.

ARTHUR J. DRAPER has resigned as president of the Icemorlee Mills, Inc., Monroe, N. C.

ROSCOE S. MILLIKEN has succeeded Herbert G. Beede as president of the Rheabat Corporation, East Pepperell, Mass.

SOUTHGATE JONES, vice-president of the First National Bank of Durham, N. C., has been elected president of the Smithfield Mills, Inc., Smithfield, N. C., an organization formed to take over the Ivanhoe Mills of that place.

ROBERT MOSS has resigned as second hand of weaving at the Lonsdale Company, Lonsdale, R. I., to take a similar position at the Palmer Mills of the Otis Company, Three Rivers, Mass.

R. D. GUINN recently resigned as overseer of carding at the Avondale Mills, Sycamore, Ala., to become superintendent of the Munford Cotton Mills, Munford, Ala.

T. C. ADAMS, formerly manager of the Manville-Jenckes Company, High Shoals, N. C., is now sales manager of the Ferguson Gear Company, Gastonia, N. C.

M. L. FROST, formerly vice-president of the Hemphill Company, at Pawtucket, R. I., and more recently in charge of the New York office of the company, has resigned and will represent the Franklin Needle Company, of Franklin, N. H., makers of the well-known Franklin latch needles, sinkers, transfer points, etc. Mr. Frost will cover the mid-western, New York State and New England territories for the Franklin Needle Company.

WARREN H. PEARMAN, general overseer of spinning, spooling and twisting for the Princeton Mfg. Company Division of the James White Cotton Mills, Athens, Ga., has taken charge of the card room, and has also been made assistant superintendent of the mill.

ROBERT HODGES is now special representative on paints and varnishes for E. I. du Pont de Nemours & Company, Inc. Mr. Hodges is traveling the southern textile territory in this position.

CLYDE JAMES will be manager of the plant being erected at Nashville, Tenn., by the Thomas Henry Sons Co., Inc., of Philadelphia, Pa.

J. M. BATTSON, who for the past year has been manager of the Lavonia Cotton Mfg. Company, Lavonia, Ga., has been elected president of the company. Before going to Lavonia, Mr. Battson was superintendent of the Opelika Mfg. Company, at Opelika, Ala.

A. R. MEEKS has resigned as superintendent of the Lawrenceville Mills of the Barrow County Cotton Mills, at Lawrenceville, Ga., to become superintendent of the new weave mill being erected by the Russell Manufacturing Company, Alexander City, Ala.

Robert E. Cooper has been made assistant superintendent of the Ponemah Mills, Taftville, Conn.

W. J. GRANT has been made overseer of weaving at the Lockhart plant of the Monarch Mills, Lockhart, S. C.

T. M. PLONK, president of the Globe Manufacturing Co., Gaffney, S. C., has taken an executive position with the Spindale Mills group, Spindale, N. C. He will continue as president of the Globe Manufacturing Co.

FRANK W. POE, president and founder of the F. W. Poe Manufacturing Co., Greenville, S. C., died at his home in Greenville, on Sunday, July 18th, following an extended illness. He was 73 years of age.

W. L. LONG has been elected president of the Rosemary Manufacturing Company and treasurer and general manager of the Roanoke Mills, Roanoke Rapids, N. C., filling the vacancies caused by the death of Samuel F. Patterson. Mr. Long has held the position of vice-president with both companies for several years. He is at present the unopposed Democratic nominee for state senator in 1927.

CHARLES C. HARDING, who is well known among the southern textile trade as a water-softening engineer, has become associated with the International Filter Co., 333 West 25th Place, Chicago, as district manager in charge of the southern territory. This concern manufactures water-softening and treating and filtration plants and equipment of all kinds for all purposes. Mr. Harding's headquarters will be at 22 Marietta Street, Atlanta, where an office of the company has been opened.

MODEL ONE HUNDRED AND ONE

The new High Speed Foster Winder for Cones, Tubes, Cheeses.

COTTON or WORSTED

The Model 101 is in use in yarn mills and processing plants winding cones for Hosiery and Underwear Knitting, Wire Covering, First Process Doubling, Cone Warping and Examining Jack Spooling.

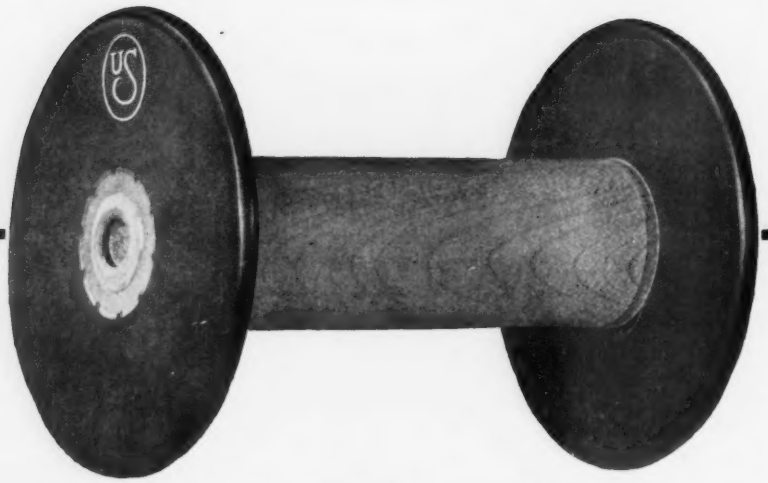
The yarn numbers range from coarse ply to 120 single and the winding speed from 300 to 550 yds. per minute.

High Speed. Delicate Handling of Fine Yarns. Economy in Power and Floor Space.

FOSTER MACHINE COMPANY

Westfield, Mass.

Southern Representative: John Hill, Healey Bldg., Atlanta, Ga.



U S Fibre Head Spools Are a Good Investment

IF doubt still lingers in your mind about investing in Fibre Head Spools, let us prove to you that you should not hesitate. Does the first cost bugbear keep you from saving money in your mill?

Judgment derived from over fifty years of bobbin and spool experience and over ten years' experience in making Fibre Head Spools, tells us that we can furnish you the best spool of this type you can buy. Our reputation is behind the U S Vulcanized Fibre Head Spool.

A U S built Vulcanized Fibre Head Spool has heads of the best obtainable grade of vulcanized fibre, accurately die-cut and perfectly centered by projecting tenons on both ends of the barrel. This method of construction obviates the necessity for turning the spools in a lathe to true them up and therefore leaves the original tough calendered surface of the fibre intact.

Spools of U S construction with Dogwood bushings have, therefore, extra strength, durability, and moisture resisting qualities. A trial lot will convince you that U S Fibre Head Spools are the kind to buy and that they will save you money, time, and trouble.

We will gladly send you, without obligation, a U S Fibre Head Spool. Test it, and see for yourself how good it really is. Write to our Providence Office or nearest representative to-day.

The U S Seal on the head is your guarantee of satisfaction. The date stamp makes it easy for you to check up on the performance of every U S Fibre Head Spool.

U S Bobbin & Shuttle Co.

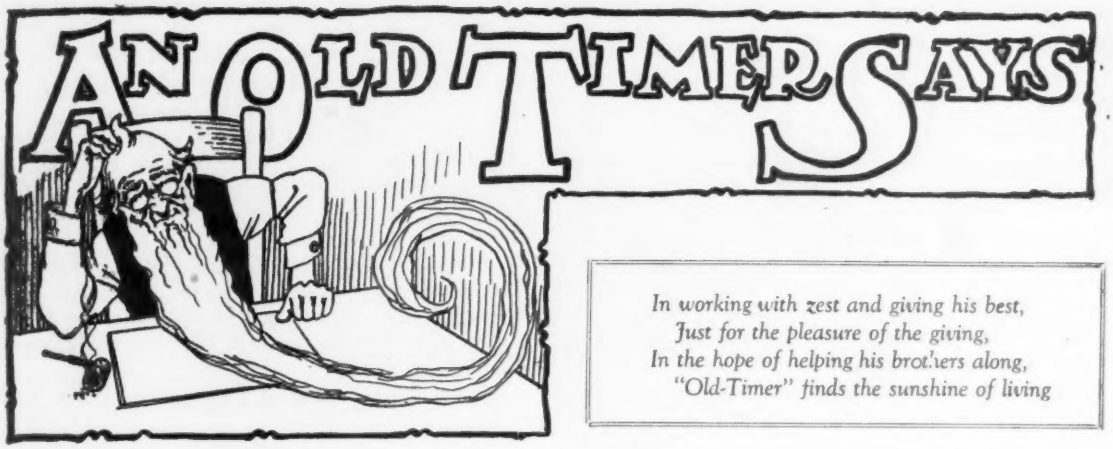
Providence, R. I.

REPRESENTATIVES

For North Carolina
D. C. RAGAN,
High Point, N. C.

For South Carolina and Georgia
M. OUSLEY,
12 E. Stone Ave.,
Greenville, S. C.

For Pennsylvania, New Jersey and Maryland
DAN O'HARA,
248 Chestnut St.,
Philadelphia, Pa.



In working with zest and giving his best,
Just for the pleasure of the giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

"Yes, Old Timer, I suppose all those things we've been speaking of would come under the head of *little* things."

"Sure, Jim. See that weaver over there pulling at that bunch of tie threads—he pulled one and the bunch was so badly tangled the thread evidently broke (we were too far away to see) and now he is trying to pull out another one.

"If he had a small bunch of tie threads (about half the warp instead of doubling the warp as most fixers do when they are putting new tie threads over the arch) and they had not been there for probably six months to get all tangled up, that weaver would have had that end pieced and the loom started to making cloth.

"Now, I'll admit that surely does sound like a *little* thing, Jim, but 100 pennies make a nice big pretty round dollar you know.

"Who is she, Jim?"

"Who's who? What are you talking about, anyway?"

"The young lady on this set of looms; is she a sister to your warper tender?"

"Say, you old bald-headed, long whiskered fool, what did you come over here for anyway, to look at all the girls in the mill, or look at my machinery?

"Haven't you any girls in your mill?"

"Look, Jim, that weaver is trying to ravel out a harness eye from that piece of old harness he got out of the tie-in room and I'll bet a dollar the loom stopped in front of him has a harness eye broken and has to stand until he can ravel a harness eye out."

"Well, what in Sam Hill can you do about that? The weavers have got to have harness eyes to tie in, haven't they?"

"Sure, old man, but why not have an old lady or some one you can get for about $10 a week take a few sets of old harnesses and ravel them out and tie up bunches of about 100 eyes each and then place a bunch at each set of looms. That will be cheaper than letting a weaver that makes about $18 per week do it, besides losing the production on the loom. It's the *little* things, Jim.

"How often do you go over the cloth, Jim?"

"Go over the cloth! What do you mean?"

"Gosh! I thought I had drilled that into your head enough in the carding and spinning rooms for you to know what I mean.

"How many times have I explained to you that an overseer must get in his alleys and look over the work and the operatives in order to keep in touch with his work."

"Yes I see you seem to look over the ladies all right.

"Come on, we will take in an alley or two."

"Jim, I thought you said your weights were running a little heavy when the cloth room man handed you that report as we came into the weave room."

"They are, Old Timer, but please tell me what caused you to ask that question now?"

"Well, these tensions are pretty slack—in fact too slack to make a good face on the cloth, and you know slack tensions will not make your cloth any lighter."

"Yes, I know."

"Look over there in that back alley, Jim. See the weaver adjusting the tension on that loom? Never mind, don't go over and jump on him now, very likely he will be there tomorrow, and besides there are just plenty more weavers in here doing the same thing; therefore you can come back tomorrow after I am gone and show them to your overseer.

"I don't see quite as many doubles as I saw the last time I was here, Jim. What have you done?"

"Well, in the first place, Old Timer, we have the fixer see that there are no doubles in his pattern before he takes it back to the tie-in room; then when he ties on a warp he looks it over as he starts the loom, and if there are any doubles he goes after the tie-in man to show it up. If there are many doubles we cut the warp out and the tie-in man only gets half pay for tying that warp. Yes, I will answer before you ask. The tie-in man quit when we started the system, but we soon had the new man doing good work."

"I know that weaver down the alley ahead of us, Jim, and I am going to speak to him, so listen to what I say.

"Hello, Henry, how long have you been here?"

"Howdy, Mr.—. I am glad to see you, sure. I have been here about six months."

"Well, it looks to me like you got these looms humping for all they are worth.

"Say, I notice your looms and alleys are about the cleanest of any set I have seen today, and I also notice your warps are all straight with no threads running over the harness.

"Your superintendent here tells me you are making a bunch of these weavers sit up and take notice the way you are getting production, Henry."

"Thanks, Mr.—. I haven't forgotten the training you gave me when you were boss weaver at —— mill."

"Are you saving any money, Henry?"

"Well, I'll tell you, my old lady has been sick—."

"Yes, I know, Henry, the old story, Henry, but I want you to show me your bank book next time I come to visit my friend Jim."

"All right, Mr.—. I sure will have it ready for you."

"Goodby, Henry, and don't forget, I am going to call for that bank book."

"Good by, Mr.—"

"Now, Jim, if you could just put a little mouse in Henry's house tonight when he goes home to supper what kind of a conversation do you suppose you would hear between him and his wife?

"You just watch Henry the next few days and see if he don't go after the cloth."

"Yes, I guess he will, Old Timer, but you don't expect me to go around here and say that to all these weavers, do you?"

"Certainly not, Jim, in fact I would say something entirely different to the next weaver I spoke to. I would tell him that Henry was making more money than he was and on the same number of looms and that as Henry thinks he is the best weaver in the mill I wanted to see him beat the wax out of him just to show him it could be done. Don't you see, Jim, the first thing you know you would have worked up a lot of friendly rivalry among your weavers and they would all be making more money and be better satisfied."

"Well, maybe so, Old Timer, but I can't see your idea in talking to Henry about his personal affairs."

"How you mean, Jim?"

"Oh, about his saving his money. My idea is that the less they have the better they work."

"There is where you have another think coming, Jim.

"You get a weaver, frame hand or any other operative to saving his money and he will work more regularly, he will make less seconds, he will be a better citizen and he will not be thinking about moving. Just pick out some of them and try it for yourself, then if you are not convinced, I'll give it up."

"Old Timer, I can't imagine an overseer or superintendent going around talking to the help that way."

"That is just one of your troubles, Jim. You can't *imagine* enough. Let me tell you something. If you can't *imagine* how Henry is feeling right now after I had that little talk with him, then there is no need for me to try to *pump* it into your head.

"Creative imagination is one of the greatest assets a man can have. If you can't *imagine* how you would like to see your room or your mill run then you are running along in the same old rut, and the first thing you know you will drop into a mud hole and find that you haven't any chains to pull out with—therefore your wheels will continue to spin around in the same mud hole, getting you nowhere, but sinking deeper and deeper in the hole until finally some young fellow will come along and take your pay check away from you. *Imagine* you can see your work running better than any mill in your section.

"Imagine you can see your mill cleaner than the other fellow's mill.

"Imagine you can see your production going up by the ten thousand little things you are doing.

"Imagine you can see that cost come off a few points each week by the way you scheme and lay out the work for your day help, your smash hands, your oilers, your sweepers, filling and quill man.

"Yes! Sure it can be done and you know it; so lay your plans, get your men together and talk it over, then make the dream you have imagined come true.

"Start something, Jim! Conceive something! Conceive first in your own mind! Make the pattern there; lay your plans just like you want them to be; then if you have got the *grit* to want hard enough and keep on wanting hard enough, you can make these dreams come true.

"Drive yourself. Force yourself. It is the dreamer, the man with imagination that beats the other fellow. James Watt dreamed what could be done with steam—

"Benjamin Franklin dreamed what could be done with electricity—

"Henry Ford dreamed of a car that every man could own—the 'Universal' car—

"Initiative, Jim, with imagination, will make you one of the best mill men in the country. The man who works merely for his pay is doing hard work; but the man who plans better ways to do things; the man who can imagine he can see his job improving; the man who can dream, and then work like hell to make those dreams come true—

"That is the man who is getting *pleasure* out of his work.

"Remember this, Jim: The world loves a leader. All the people in the world from the lowest type of Negroes to the most intelligent people anywhere are eagerly seeking for someone to follow.

"When you are a better overseer or superintendent than other men the people who work for you will be glad to follow you. They are proud to work for a man who is considered the *best*.

"But to instill confidence in the people who work for you, you must have confidence in yourself, you must have an active mind which calls for imagination and initiative, and then enough backbone behind it to keep you up on your toes all the time.

"It has truly been said that:

" 'It is not the size of the dog in the fight but the fight in the dog that wins.'

"History is full of the records of poor men, uneducated men (in the sense of college education) who thought great thoughts, who dreamed or imagined great things, then set their heads and put all their energy behind those thoughts until they rose above the crowd and were pronounced *great men*.

"So, Jim, what I am trying to get you to see is that it is not special training nor is it all education that makes men successful. Those things help, of course; they give a man an advantage over the fellow who hasn't been fortunate enough to get them; but the thing that really counts is that gift which all men have if they will cultivate it—

Creative Imagination.

"Remember, Jim, that talk I had with you about the passage in the Bible which says 'As a man thinketh in his heart so is he?' That's as true today as it was thousands of years ago.

"Providence never has made a practice of picking out certain families or certain individuals to be the most successful men. History proves just the opposite, as I pointed out to you a few minutes ago.

"Then it is a fact that *you* have got as much chance to be a successful overseer or superintendent as any other man. It is entirely up to you."

"By gosh, Old Timer, I am going to go down after it. I am going to get more out of this job than any man who has ever run it. You know, I believe I see what you are driving at. I have been thinking work was hard, a grind, that I had to work to make a living or perish; but darned if I don't believe that I can have a lot of fun out of my job after all.

"I always feel kind of 'pepped' up after you come to see me anyway, but I believe I have the idea different this time than I have ever seen it before."

(The mill has been stopped almost an hour and we are sitting on the cloth table talking).

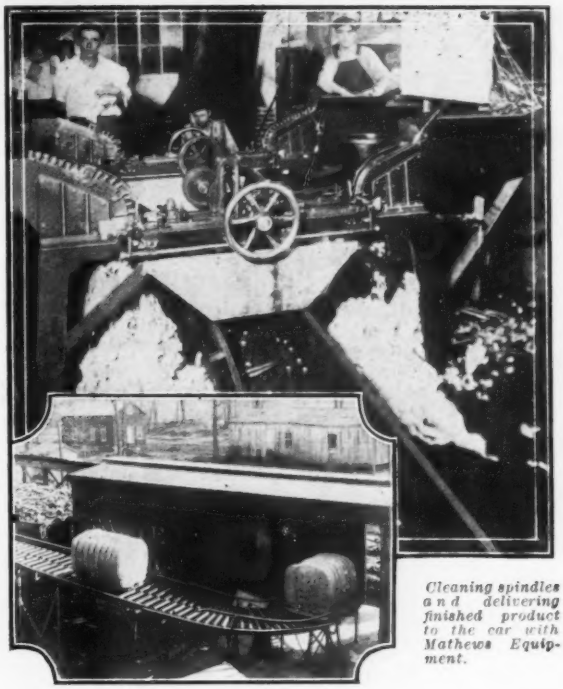
"Come on up to the house, Old Timer, and fire up that old cob pipe while I help the good lady get us a bite to eat. It is too late for you to drive home tonight."

[Editor's Note:—This series of articles started in the May number of COTTON and we strongly advise our readers to start with that first article and read straight through in order to get a continuous line of thought. By reading the whole series at once you will be able to form a mental picture of what "Old Timer" is trying to teach Jim (his protege) an uneducated boy of whom he is determined to make a successful mill man. Also note that "Old Timer" says the college graduate should study the methods he lays out for Jim and, having the foundation of an education he should advance faster.]

COTTON CHATTER
By Chatterer

I guess you know
That some mill men
Will always consider
That most traveling men
Are a nuisance
In some ways
But I have found
That when one calls
If you will treat
Him as a man
And try to find
What he knows
That you don't know
That you can add
To your Stock
Of knowledge and facts
Lots of things
Just because
They gather up a lot of facts
In their travels
Around the circuit.

At the convention of the Associated Advertising Clubs of the World, held in Philadelphia in June, the exhibit of Graton & Knight Manufacturing Co., Worcester, Mass., in the industrial exhibition hall of the convention, was awarded first prize in competition with exhibits of sales campaign material entered by hundreds of the leading manufacturing and business firms in the United States and 14 foreign countries. This award was on sales campaign materials, including direct mail, literature, leaflets, booklets, folders, etc.



Cleaning spindles and delivering finished product to the car with Mathews Equipment.

All the Way With MATHEWS

CONVEYER Equipment in the textile trade starts its economies in the handling of raw materials and finishes its job with shipment of the product.

There is some place in your plant where modern conveying will speed up operations and lower labor costs. The right means to be used can only be determined by experience in the industry. For many years Mathews has specialized in cost-cutting handling methods for textile plants.

Let our District Engineer tell you what we have done toward Bearing the Burden of Industry.

MATHEWS CONVEYER COMPANY
162 Tenth St., Ellwood City, Pa.
Canadian Factory: Port Hope, Ontario

MATHEWS
Conveyer Systems

Mathews Conveyer Co., 162 Tenth St., Ellwood City, Pa.
( ) We are interested in mechanical handling for.....
.....
( ) Your representative may call on us.
Firm .....
Individual .....
Address .....

Nothing can take the place of Good Management

System, Method, Equipment, Capital and other such essentials of business are never substitutes for brains.

They are only *tools*.

None of them can take the place of Management any more than brush, paint or canvas can take the place of art. Their usefulness is determined by the ability of Management.

Always at the top must be the power to think, decide, initiate, direct and control.

Good Management seeks a complete kit of the best tools. It recognizes and selects the best—then uses them with skill.

ERNST & ERNST

ACCOUNTANTS AND AUDITORS—SYSTEM SERVICE

NEW YORK	BUFFALO	CLEVELAND	ATLANTA	ST. LOUIS	CHICAGO	DALLAS
PHILADELPHIA	ROCHESTER	AKRON	MIAMI	KANSAS CITY	MILWAUKEE	FORT WORTH
BOSTON	PITTSBURGH	COLUMBUS	TAMPA	OMAHA	MINNEAPOLIS	HOUSTON
PROVIDENCE	WHEELING	TOLEDO	LOUISVILLE	DETROIT	ST. PAUL	SAN ANTONIO
BALTIMORE	ERIE	DAYTON	NEW ORLEANS	GRAND RAPIDS	INDIANAPOLIS	WACO
RICHMOND	YOUNGSTOWN	CINCINNATI	JACKSON	KALAMAZOO	DAVENPORT	SAN FRANCISCO
WASHINGTON	CANTON		MEMPHIS		DENVER	LOS ANGELES

ALL KINDS OF RUBBER COVERED ROLLS

Stowe & Woodward Company

Newton Upper Falls, Mass., U. S. A.

There is a Pee Gee Paint Product for Every Purpose

Pee Gee PAINTS
SINCE 1867
VARNISHES STAINS ENAMELS

J. L. GLENN
Special Representative
CHARLOTTE, N. C.

PEE GEE MILLITE *Stays White*

It will not discolor and that accounts for its constant use over a period of many years by hundreds of mills.

It will not fade, peel or check—it stays white and it spreads light.

Complete information and prices on Millite or any Pee Gee paint product may be had by addressing J. L. Glenn special representative at Charlotte N. C. or any Pee Gee office.

PEASLEE-GAULBERT, CO. INC. LOUISVILLE—ATLANTA—HOUSTON—DALLAS

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

A Spinning Problem.

EDITOR COTTON:

I have a spinning problem which I feel sure some of your readers may be able to help me solve.

We are going to increase our filling bobbins from 6½ inches to 8 inches in length. The length of the spindle below the whirl is three inches. The length above the whirl is six inches. The top of the bobbin, when in position on the spindle, is 1⅜ inches higher than the spindle point where the bobbin grips the spindle.

If we increase the length of the bobbin 1½ inches the point of contact of the spindle point and bobbin to the top of the bobbin is increased to 2⅞ inches. My contention is that the spindle will be unbalanced, and shaky spindles will result, as the bobbin fills up, owing to the increased weight above the spindle point. Would it be cheaper in the end to install longer spindles?

I would be glad to have the opinions of some of your readers on this point.

CHRISTY (MASS.)

Asks Opinion on Machine Layout.

EDITOR COTTON:

We are installing the Model D-3 Whitin comber, the production on which will be 210 pounds a day each. We expect to make 30s and 40s yarn from 1 1/16-inch cotton, this yarn to be used in weaving lenos, etc. We have not had a great deal of experience with combing, and I am giving you below our present carded lay-out, hoping that some of the readers of "How Other Men Manage" will tell us what changes we should make on installing the combers, and any other information.

At the present time we are running 1 1/16-inch Middling cotton through two vertical openers and three processes of picking. The speed on the first vertical cleaner is 640 r.p.m.; second, 810 r.p.m. The first beater on the bale breaker is a three-blade running 940 r.p.m., setting 3/16-inch. The breaker beater is a two-blade running 1,180 r.p.m., with a setting of 3/16-inch, making a lap in four minutes, the lap weighing 18 ounces per yard. In the intermediate we have a three-blade Kirschner beater running at 940 r.p.m., setting ⅛-inch, making a 14-ounce per yard lap in eight minutes. The finisher beater speed is 940 r.p.m., setting ⅛-inch, making an 11-ounce per yard lap in eight minutes. The cylinder speed of the cards is 165 r.p.m., doffer, 7½ r.p.m., licker-in 440 r.p.m. Card settings are: doffer to cylinder, 7/1000; flats to cylinder, 10/1000; feed plate to licker-in, 12/1000; licker in to cylinder, 7/1000; mote knives, 5/000; licker-in screen to licker-in 34/1000; back of screen to cylinder, 19/1000; bottom screen to cylinder, 34/1000; front plate to cylinder, 34/1000. The card sliver is 42 grains per yard, six ends up on the drawing; first drawing 47 grains per yard; second drawing, 50 grains per yard. Slubber roving, .70-hank; warp intermediate roving 1.80 hank; warp speeder roving, 5.25-hank for 30s yarn. Filling intermediate, 2.00-hank; filling speeder roving, 6.80-hank for 40s yarn.

The front roll speed on first and second drawing is 240 r.p.m. The slubber front roll is 1 3/16 inches, speed 178; the slubber jack shaft speed is 286 r.p.m., the spindle speed is 662 r.p.m. On the warp, the intermediate front roll speed is 148 r.p.m., and the jack shaft 425 r.p.m. The front roll is 1 3/16 inches in diameter. The spindle speed is 968 r.p.m. On the filling intermediates, the front roll speed is 145 r.p.m. The warp speeder front roll is 1⅛ inches, at 110 r.p.m., and the jack shaft runs 450 r.p.m., and the spindle 1,308 r.p.m. The filling speeder front roll speed is 95 r.p.m.

On the warp spinning, the front roll speed is 116 r.p.m., and the spindle speed 9,000 r.p.m. The filling front roll speed is 106 r.p.m., and the spindle speed is 8,800 r.p.m.

Drafts are as follows: first drawing, 5.36; second drawing, 5.64; slubber, 4.2; warp intermediate, 5.14; filling intermediate, 5.74; warp speeder, 5.84; filling speeder, 6.80; warp spinning, 11.00; filling spinning, 11.76.

Twists are: slubber, 1.19 turns per inch; warp intermediate, 1.758 turns per inch; filling intermediate, 1.77 turns per inch; warp speeder, 3.538 turns per inch, filling speeder, 4.1278 turns per inch; warp spinning, 27.97 turns per inch; and filling spinning, 26.97 turns per inch.

In any readers will give me any suggestions as to changes or any specific or general information that will help in connection with our installing combers in this lay-out, I will sincerely appreciate it.

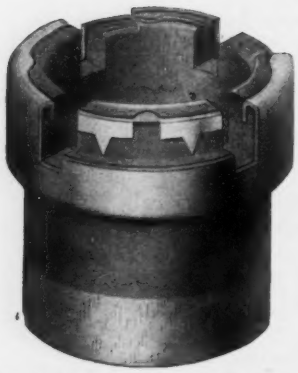
V. F. (N. C.)

Neuberger & Co., Inc., 160 Fifth Avenue, New York City, sole United States agents and distributors for Zehlendorf Viscose rayon yarns, have announced the appointment of the following representatives for the distribution of this product: Edward J. McGaughey, P. O. Box 225, Pawtucket, R. I.; Andrew K. Henry, 158 Summer St., Boston; Laughlin Textile Mills, Inc., Waterford, N. Y.; F. E. Wilson & Co., 427 Drexel Bldg., Philadelphia; T. Holt, Laird & Co., 500 McAdoo Bldg., Greensboro, N. C.; R. D. McDonald, James Bldg., Chattanooga; Joseph Heilbron, 27 East Monroe St., Chicago; and S. Katzenstein, 1003 Ulmer Bldg., Cleveland.

WILSON BROTHERS BOBBIN CO. LTD.

BOBBINS & SHUTTLES

for the TEXTILE TRADE.

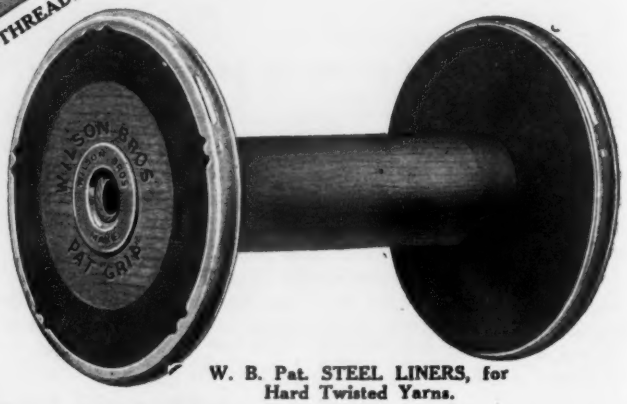


W. B. Pat. "GRIP" SHIELD.
Absolutely Secure.

ESTABLISHED 1823

TRADE MARK

W. B. HAND-THREADING SHUTTLE.



W. B. Pat. STEEL LINERS, for
Hard Twisted Yarns.

CARDROOM TUBES,
RING BOBBINS,
WINDING BOBBINS,
PIRNS, &c., &c.

Largest Makers in the World.

WILSON BROS. BOBBIN CO., LTD.,

& at **TODMORDEN.** GARSTON, LIVERPOOL.

Telegrams: "NUGGET, LIVERPOOL."
Codes: A B C, A1, & Marconi.

Agents—**LEIGH & BUTLER,** *Boston, Mass., U. S. A.*

Why the Roving Gets Lighter.

EDITOR COTTON:

In the June issue of COTTON "T. R. F. (Ga.)" wants to know why the roving becomes lighter when a change is made to shorter cotton.

This question has been aswered many times in the past thirteen years in the "How Other Men Manage" department.

The inquirer states in the first paragraph that a man argued with him and claimed that there was just as much cotton put in as before, so the same must come out, which is true. But in what form does the fiber come out? Let us first consider what happens when we change from a long to a shorter grade of cotton. As a rule, the short cotton is of a lower grade and weaker; therefore, the length of the strand depends on the amount of frictional contact between the front leather and steel roll. Wiry cotton will of course offer more resistance than fluffy cotton, and affects the length of the strand correspondingly. That is why I often preach the art of drafting. Drafting is an art, and is understood and mastered by very few mill men.

The successful mill is one that has a superintendent or carder who can go to the mixing room, sample the stock mixed and then tell what amount of loss in production a poorer grade of cotton will cause. The following comes into his mind after sampling a poor and short sample of cotton:

(1) He must make the laps a ½ pound heavier to make up for this loss. He has in mind what was stated in the foregoing about the weaker and poorer grade of cotton giving the front leather roll more freedom. In other words, the less the frictional contact, the longer and lighter the strand.

(2) It is often the case, where a change is made from a long fluffy cotton to a short wiry cotton. In such a case the amount of friction between the top leather roll and steel roll would be about fifty-fifty. The foregoing case is what I think "T. R. F." wants explained.

Granted that the same amount of cotton comes out, let us first consider the weather. The atmospheric conditions of the room play an important part. Again, the mill man who would rise to a higher position in his calling must learn all about the nature of the materials with which he works. Cotton strands are not as coherent in the summer as in winter. Humidifers play an important part also. In the summer months when the windows are opened the same benefit is not derived from humidifiers. Therefore, cotton will expand and the following is the result:

Picture in your mind, if you can, that by changing from a long to a short staple the frictional contact between the top leather and front steel rolls remains the same. Now follow the strand from the drawing rolls to the hollow leg of the flyer to the surface of the bobbin. In case of long stock, the strand is of course stronger than a strand composed of short fibers. So any strand that will hold its length is stronger than the resistance offered by the increasing diameter of the bobbin. In other words, the strength of the strand makes a harder bobbin simply because the stock is longer than the distance between the eye and the termination of the presser finger, and this it is that keeps the relationship of the surface speed of the front roll and bobbin equal.

In case of short stock, owing to the stock being shorter than the distance between the eye of the presser and its termination, stretch takes place, and weak places appear in the strand, because the drawing at this point is not gradual, so there is a lighter roving.

Mill men meet every little while and discuss roving and yarn, but in each instance they fail to get at the real cause.

There is no question about the same amount of cotton coming out, but the work of winding on is done by a small belt that is called upon to revolve all bobbins during winding. When the cotton is wiry it slips more and gives the strand a chance to equal conditions, when the cotton is short, the cone belt does the evil that has brought many spinners to the mourners' bench.

WASH (R. I.)

EDITOR COTTON:

"What makes the roving lighter?" is the question asked by "T. R. F. (Ga.)" in the June number.

It will be noticed in the bale that short cotton carries more dirt, seed, etc. When we come to the picker and card this must be taken out; also there are more short fibers in this cotton for the flats to take out.

On the drawing and roving frames one notices more waste in the form of fly and clearer waste, especially if the rolls are set wide for the staple. I believe that "T. R. F.'s" trouble is caused in this way. If he will have his picker laps sized and made slightly heavier, this lightness of the roving will probably be overcome. It would also be advisable to size draw-frames daily and make changes there rather than on the spinners.

I am sure "T. R. F." must have noticed his room get much dirtier when changing to short cotton, because of the extra amount of fly waste in this cotton.

I am quite sure he will notice his room clean up if he ever returns to the longer cotton. J. C. (Mass.)

EDITOR COTTON:

In June issue of COTTON, "T. R. F." inquired, what makes the roving lighter, when the rolls of fly frames are set to say 1⅛ inches, and the stock is changed to shorter staple, say ⅞ to 15/16 inch? His theory is that the roving becomes lumpy, and the twist runs to the thin places, and then when the thick place comes to the presser, it stretches.

In addition to his theory, I would say that there is an actual increased loss of weight of the roving due to the setting of the rolls being too wide. First, let us consider the clearer waste. During the time when a strand of cotton sliver is drawn between two pairs of rolls, especially between the front and the front intermediate rolls, the strand of cotton fibers takes the form of a thin sheet, and the control of fibers by twist or by compact bulk is minimized. Some of the short fibers on the outside of the strand are liable to drop or to be carried to the clearer board or clearer roll as waste. For this reason, the setting of rolls should be such that it will not hinder the drawing action, and yet that most fibers be held at one end by a pair of rolls and carry the shorter fibers with them on their forward movement. While too narrow a setting would result in breaks of long fibers, in hindering drawing action, and injuring covered top rolls, a setting of the rolls wider than necessary for the length of cotton used would result in poor control of the fibers, whereby more short fibers

B-W CONSTRUCTION COMPANY
NOT INCORPORATED
BEUTTAS BROS.
GENERAL CONTRACTORS
720 CASS STREET
CHICAGO

ATLANTA, GA., OFFICE
425 PONCE DE LEON AVE.
TELEPHONE HEMLOCK 7607

Atlanta, Ga., May 28, 1926.

Mr. J. A. Glosier,
C/o Birmingham Slag Co.,
212 Walton Bldg.,
Atlanta, Ga.

Dear Sir:

In answer to your inquiry of May 21st in which you ask to be advised as to whether or not we used additional cement above the requirements of the nominal mix for 2000-lbs. and 3000-lbs. concrete in the construction of the Sears, Roebuck and Company's Building, and if slag as a coarse aggregate requires the use of additional cement, as compared with my experience in the use of stone and gravel.

In answer to the above, you are advised that it was not necessary to use additional cement with slag aggregate to attain specified strength concrete. We did, however, use one-half bag additional cement for no other purpose than to allow us to pour the fifth, sixth, seventh, and eighth floors in twelve working days. This was done solely to aid additional strength and quicker set. Other than for this exception we used nothing but the nominal mix, which at all times gave us a concrete that has met with the entire satisfaction of the owners and Architects.

I take this opportunity to thank you for the splendid service your Company gave us on cement, sand, and slag. Never in my fifteen years experience in the Engineering and Construction field have I received more consideration and quicker delivery of building material than we have received from your Company.

Trusting that I again may have this pleasure and asking that you do not hesitate to write me should you at any time desire further information in connection with the concrete work in this building, I am,

Very truly yours,
B-W CONSTRUCTION COMPANY,

By C. A. Driver,
General Superintendent.

CAD'LW

Sears-Roebuck Building in Atlanta; Geo. C. Nimmons Co. (Chicago), contractors; C. A. Driver (Kansas City), gen'l supt.; A. J. Alport (Kansas City), engineer; construction required 30,000 cubic yards of reinforced slag concrete.

BIRMINGHAM SLAG COMPANY
Slag Headquarters for the South
ATLANTA
THOMASVILLE
BIRMINGHAM
MONTGOMERY
OCALA, FLA.

on the outside of the strand go as clearer waste.

Then there is the fly waste to consider. The centrifugal force due to the revolving flyer and bobbin throws away from the roving some short fibers as waste. A setting of rolls wider than necessary results in poor control of these fibers, especially the shorter ones, and thereby renders the roving lumpy. As twist does not run to thick places, an increased amount of short fibers would be thrown away as fly waste from the lumps in the roving.

Therefore, in addition to the theory of "T. R. F." on stretching at the presser, I consider the slightly increased amount of clearer and fly waste as causes for the fact that the roving is lighter. "T. R. F." also mentioned that a man argues with him that he puts just as much cotton in as before, so the same must come out. This man would be right, if he should consider the total amount of roving produced plus all the waste rendered.

L. K. (R. I.)

Thin Places in Shade Cloth.

EDITOR COTTON:

I would like very much to receive from COTTON'S readers some suggestions on how to keep down thin places on 44x40 shade cloths, running without feelers. I am having quite a bit of trouble with this.

Those familiar with this class of goods know that a thick place is just as bad as a thin place, so we are set to eliminate these as far as possible; in fact, we are not allowing let back to drop any, we have it secured fast. The result is all the let back is the lost motion in gears and sand roll. We have E Model Draper looms, positive worm take-up and double filling fork.

CONTRIBUTOR No. 4231

Fitting Latches and Rockers.

EDITOR COTTON:

I see in the July issue that "W. O. R. (Mass.)" writes another letter on fitting latches and rockers. He terminates his article thus, "I should like to hear from 'Wash' on this subject. If I can be shown where I am wrong, I will benefit by it, but in using my method I have not as yet encountered any trouble with a set of latches."

In the March issue of COTTON, in my article entitled "More on Building a Perfect Bobbin," I stated, "'W. O. R.' can follow his method as outlined in his article, but I would not allow it in the mill of which I have charge. When I make a statement, I can back it up.

In the first place, "W. O. R." should learn to draw from practitical experience. His first drawing is theoretical. The working surface of the rocker jaw is greater than the latch. When he made the drawing he had the arc theory in mind. His drawing is very misleading to the young student, and amusing to the practical carder. He would have us believe that the point of the latch rises higher than the fulcrum point.

Of course the depth of the rocker jaw varies on the different makes of English fly frames, but seldom more than ¼-inch, and never rises to the fulcrum point. So the theory of the latch following an arc line is all wrong.

Now, let the readers use "W. O. R.'s" own drawing, and draw a line in the center of the rocker jaw, and next picture the space that would result when the rocker became slightly worn. That is what I had in mind when I stated, "When the screw operates the latch in the sketch to point *B*, which should be only ¼-inch, or changing point (see my sketch, page 471, March issue), the space gives too great a field in the meshing of the strike gear and twin gear, and the danger of slipping is much greater than that of a latch that is squared to the rocker." If the reader will take the trouble to examine any English type of builder, he will find that the latches are much lower than the fulcrum point, that is, the point of the latch that engages the rocker jaw. Therefore, even without wear, my statement is correct.

The difference would be that a little wear would surely cause skipping.

Now, I think I can show "W. O. R." something. When a latch is arc-shaped, as outlined by "W. O. R.," after a little wear of the rocker jaw and latch, a bad tapered bobbin results. Now the reason is due to the pressure exerted on the rocker against the point of the latch by the springs or weights that operate the rocker at each change of the traverse. Springs cause the greater pressure, for the reason that the poker bar has the greatest angle on the first change after doffing.

In case of springs, the greater the angle of the poker bar the greater the strain on the spring that must engage the latch on that change. In other words, it eases up on the spring that has just operated the latch, and adds the strain on the other latch so as to make the change positive and sensitive.

With the weights it is different, for the reason that the same poundage rests on the side of the rocker without regard to the position of the poker bar.

With this in mind, picture, if you can, a latch that is arc-shaped and a rocker jaw that is worn at the point of change. Next, consider the working surface of the latch as ¼-inch and the pressure exerted by the springs or weights. What happens? The latch is made to change slightly before it reaches the changing point. It may do this for two or three layers, and next change where it should, thus causing a little running over and under, and also causing a bad tapered bobbin. When you square the rocker and latch, you are sure that the latch will hold until made to change by the operating screw on the other end of the latch.

I am still from Missouri. WASH (R. I.)

Comment on Cards.

EDITOR COTTON:

Having seen a good deal of discussion on flat settings for revolving flat cards, I would like to offer a comment. In the May number "Contributor No. 14" writes on "Progressive Flat Setting." In progressive setting the front flats are set closer than the back flats. And for what reason? Because the back flats take out the heavier impurities, therefore the wider setting is not needed because the work has become finer.

As far as we go this is all right, but it is a strange fact that the back flats that have taken out the heavy impurities are soon the front flats! By setting the front flats close we allow impurities to be drawn back into the fibers which are ready to be placed on the doffers. "Contributor No. 14" compares flats to rolls on future processes. I fail to see it that way. As the purpose of the flats is to clean the fibers and in figuring draft on cards we allow for the

Is this shadow on YOUR mill ?

Fungi—or dry rot—is the mill owner's worst enemy. This destroyer thrives in the abnormally high humidity found in cotton and worsted mills. Untreated sub-flooring and timbers, no matter how sound or how high the heart contents cannot long withstand their vigorous attack.

In years gone by, many methods of construction and many types of wood were used to combat this decay. But not until science discovered that creosote oil poisoned the food on which the fungi fed, was this perplexing problem of construction solved. But even such a powerful specific as creosote oil must be scientifically applied to make timber impervious to dry rot.

Creo-pine Sub-flooring

To prevent fungous infection or decay, the creosote must be able to penetrate the wood deep enough to form a continuous exterior shell of poisonous treated wood, deeper than any surface checks which are likely to develop, and to retain its toxicity or poisoning power under continuous service. Creo-pine sub-flooring is treated by the S. W. P. vacuum pressure process which first draws out all the sap and then forces the creosote oil deep into the pores of the wood under tremendous pressure. The result is a sub-flooring impervious to dry rot. That is why Creo-pine is the standard sub-flooring in cotton mill construction.

SOUTHERN WOOD PRESERVING CO.
ATLANTA, GA.

Treating Plants EAST POINT, GA., *and* CHATTANOOGA, TENN.

Sales Offices:

NEW YORK · PHILADELPHIA · PITTSBURG · TOLEDO
CLEVELAND CHARLOTTE, N.C.

waste made, just how are the flats to be compared with drawing rolls?

I believe that progressive setting is in the wrong line. I believe that one should set close enough to clean well, yet, not so close as to redeposit these cleanings.

The article on "Paging the Card" by "Carder, (Mass.) in the July issue is a good treatise and should be complimented. As "Carder" states, too little attention is paid to the selection of picker bosses.

Here, in most cases, is the making or breaking of an overseer. The whole mill depends on this picker boss. If poor or uneven work is run here, the whole mill will run poorly, no matter how good the next processes are run.

In regard to stripping I agree that the every other card method is unnecessary, but do not think that cards running on long staple need stripping oftener than short staple. At the most cards get stripped none too often.

Long stock most always goes with fine work, and more stripping is given to long stock because the fineness of the work makes it possible to have time. Coarse and short work really need the most stripping as the short work has much more fly, dirt, and short cotton in it.

As to stopping at 9:30 on Saturday I say, don't do it. I would have the grinder's helper rather than the card help brush down, etc. I would have him brush down Wednesday and Friday at noonhour, and Thursday have him clean pulleys, hangers, etc., allowing him to go out one hour earlier at night. In any mill when the time comes that cards can be stopped early, I repeat, don't do it. Change either the licker-in pulley or the doffer gear and slow down the doffer. By doing this the cotton will receive a better combing and produce better work, as well as making the work easier for the help. No one will go wrong by keeping his cards on the tight pulley and running the doffer as slow as possible and be able to keep up.

E. S. (Mass.)

Worn Pins in Flyers.

EDITOR COTTON:

Judging from "Wash's" letter in the July issue, on "Worn Pins in Flyers," in which he criticizes some company for asking in a pamphlet, "Are your flyers worn in the let-on, that is, in the part that fits over the spindle, allowing the flyer to shake?" I am inclined to believe he doesn't thoroughly understand the question. Though he states that "these people missed a point," I am sure it is very safe to say that he has missed *the* point regarding worn flyers.

Though I do not know the particular company offering this flyer service, I do know that they must know their business, and when they ask if our flyers are worn in the "let-on," they know that this defect is the root of the "worn pin trouble," and flyers that are worn in the "let-on" or lower socket will need to have many worn pins replaced over a short period.

So I would like "Wash" to consider the question again, and understand that worn pins in flyers are not the real cause of "shaking" flyers, whether it be on a bobbin- or flyer-lead frame. Let us think a little on this point, and while thinking we shall probably arrive at the initial cause of this flyer trouble.

When a flyer, that is a new one, is first placed on its new spindle, do we find it shaky on the spindle, or rather do we find it needs a little extra exertion to pull it off? Why? Not because the pin is tight, for the flyer goes on easily enough, but simply because the "let-on" is made to fit the spindle at a point where the lower end of the socket or "let-on" touches, thus giving the flyer a grip on the surface of the spindle at that point, and so relieving the strain on the flyer-pin, and if this condition would always remain so we would not have to renew so many worn flyer-pins, but as the inner surface of the socket gradually wears away and becomes easier on the spindle the strain on the pin is gradually increased, hence worn pins and shaky flyers.

But what causes the inside of the socket to wear?

Several things in addition to friction of the two surfaces, including the rough handling of the flyers at doffing time, jumping spindles, and unbalanced flyers, and the latter cause seems to me to be the fact which our friends who published the pamphlet would like to impress upon mill men.

"Well, how do they become unbalanced," someone will ask.

We all know that every new flyer, when finished by the manufacturer, is or should be guaranteed perfectly balanced and ready for use on its particular frame. Quite so. Now after, say, that flyer has been performing its work in first-class shape for a month or so, something occurs, perhaps by accident or otherwise—the presser is broken. Of course, the fixer, if he is on the job, will promptly replace it with a new one and so have that particular spindle producing as soon as possible, but he has no guarantee that the new presser equals the weight of the old one, hence, he has thrown that flyer out of balance, and mind you, this is done every day without a thought of the evil wrought by so doing. In fact, I have seen men, good speeder men, taking old or rusty pressers and rubbing them up with sand-paper and fitting them on a flyer, little knowing that they have helped that flyer onto its way to destruction.

I know of one large corporation which allows its speeder tenders to use slubber flyers that have been lying around the cellar for years. But a little emery cloth and a rub improves the looks of them and everything is all right until they begin to shake, and they require new pins, as "Wash" thinks.

However, I hope it is clearly understood that when a flyer is heavier on one leg than the other it is unbalanced and being so will surely cause the inside of the "let-on" to wear and so make it loose on the spindle, thus causing more strain on the flyer pin, hence, frequently worn pins. The only way and most economical way in my opinion—and by the way, I did this years ago in England—is to always have a fair number of new flyers on hand, and when there are a few broken pressers, or any defect, have them sent away to the flyer-shop to be properly overhauled. This I found saved a great deal of trouble and also kept our flyers up to concert pitch.

D. E. (R. I.)

W. T. CRESSWELL has become overseer of carding and spinning at the Cascade Mills, Mooresville, N. C. He was formerly overseer of carding at the Chadwick-Hoskins Company, Charlotte, N. C.

S. LAWRENCE has become overseer of weaving at the Fort Mill Mfg. Company, Fort Mill, S. C.

What Industry Finds Here

Dependable hydro-electric power
Reliable native-born labor
No labor disputes or strikes
Big surplus supply of cotton
Coal, iron and timber handy
Rail and river transportation
Very low building costs

Pure, soft river water
Absolute freedom from malaria
Pure drinking water supply
Plenty of low rental houses
Efficient street transportation
Fine churches and schools
Bonds to pave all main roads
Friendly public sentiment

Five Years Tax Exemption

COLUMBUS, Ga.

-typical of the Growing Southeast

WITH its borders lying in the two states, Columbus is typical of the spirit and progress of both Georgia and Alabama. A peculiar combination of industrial advantages have encouraged our people in a program of self-help which has resulted in 22 notable factory enlargements and fourteen new industries within the last year. There may be something promising at Columbus for you, and we would like to tell you more about opportunities here.

No Factory Failure in Over 60 Years

Columbus Electric & Power Co.

Columbus, Georgia

West Point — LaGrange — Hogansville — Newnan

Executive Management, STONE & WEBSTER, Inc.

A Cause for "Loose Ends."

EDITOR COTTON:

In the July issue a contributor discussed "Loose Ends."

I think the first job of an overseer of any department of a mill, the first minute he takes charge, should be to determine if the second-hand was a man who had had experience to run his job, or a man with a pull with some of the higher-ups. That is one reason there are so many "loose ends." The overseer has to handle his job and also the second-hand's job, while if he would get a *man* for the job things would be better for him. He could have time to check over his room and see where the "loose ends" are. But in a lot of cases he has no man who can run his job in the right way, and may not be allowed to get a man of that caliber. At the same time the superintendent wants everything kept in first-class condition.

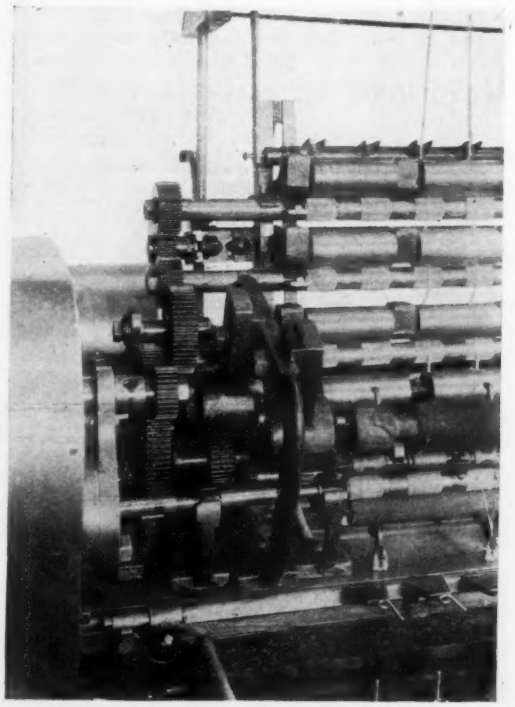
R. E. (GA.)

The Ferrand System of High Drafting.

In connection with the present attention to long draft spinning, the Ferrand system of high drafting, developed in England and handled by the Universal Ring Spindle Co., 212 Royal Exchange, Manchester, England, is of interest. The system is shown in the accompany illustrations.

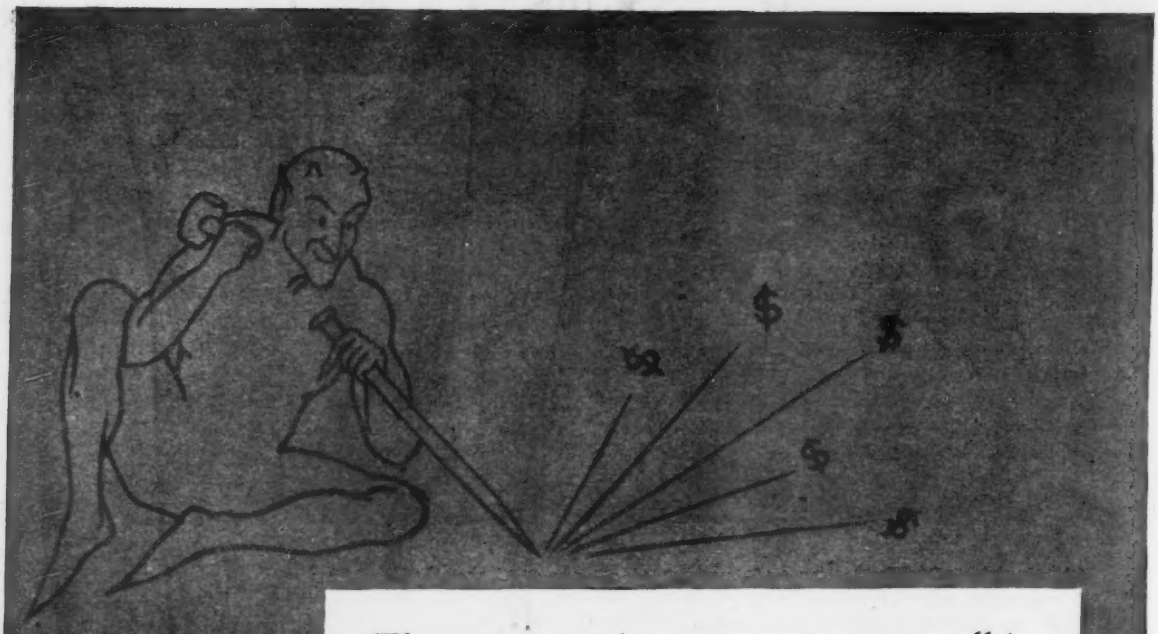
It will be noted that this system employs two sets of rolls—one vertical set and another set inclined in the usual manner. It is stated that with this method, yarn is made direct from slubber bobbins. The *Textile Recorder* described the system, in a recent issue, as follows:

The system is a simple one and ring frames or mules can be readily altered to embody it. In the case of a ring frame bridge pieces are employed which bridge from roller beam to roller beam. The bridge pieces, which are of cast iron, support three pairs of rollers arranged vertically. The top rollers are of heavy construction and the lower rollers are fluted, continuous in length and positively driven. The illustrations show the general arrangement and the gearing end of a frame. The line drawing shows the action on the fiber. A suitable roving traverse guide is provided. The drafting in the usual ring frame rollers is standard and it is by the compound gearing that the intermediate, roving and spinning drafts are obtained.



At present a bobbin of slubber roving is placed in the creel—such bobbin lasting a considerable time—and the said roving passes through the rollers as indicated in the sketch. It will be noted that the roving lies in close contact with the rollers for a considerable portion of their circumference—approximately one-third. Further it will be noted that the distance between A and B, for example, is longer than the length of the staple of cotton used. During the passage of the fiber through the apparatus there is a constant slippage taking place and moreover the quarter turn in the roving is taken out before it reaches the back line of rollers of the ordinary ring frame. In passing into the nip of the latter pair of rollers it can be observed that the fibers are quite parallel and regular. It will be appreciated that the system is simple, positive, has no springs and no leathers to wear out. Uniform slubber bobbins can be utilized and a 1.00 hank slubber roving has been spun into counts varying from 20s up to 36s. The reduction to an absolute minimum of the number of slubbing bobbins required is a valuable asset. Counts are changed by the usual change of twist wheel and pinion wheel. The advantages will be obvious, embracing a saving in wages, power, upkeep and general expenses, while all waste, made in the intermediate and roving frame is eliminated. Cotton, wool and asbestos have all been drafted and spun by the apparatus, which will also deal efficiently with cotton and wool mixtures.

"There are two things I can't get along without—your respect and my own."



The most expensive name on your payroll is

DEPRECIATION!

For the moment, ignore the greater output from TOLHURST Extractors. Do not count the savings in power and the economy in labor or operating expense. Forget the safety factor and freedom from repairs. Even with all these big savings left out of the picture, the TOLHURST remains the *Economical Extraction Unit* because its worth remains—its depreciation is far slower.

Twenty—twenty-five—thirty or more years of dependable service—service that includes every operating advantage and convenience and gives many more dollars in value by giving many more years of work than one naturally expects.

And this is the reason—TOLHURST Extractors are—

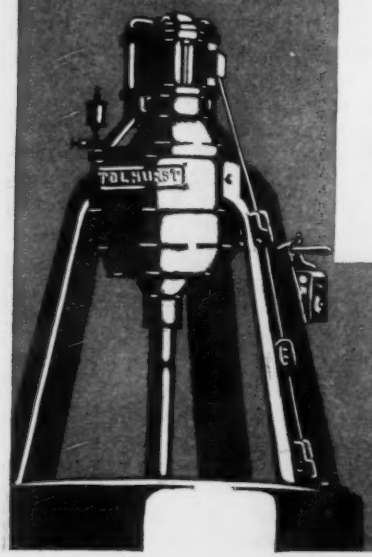
Western Representative:
John S. Gage
8 South Dearborn Street,
Chicago, Ill.

San Francisco Rep.:
B. M. Pilhashy
Merchants Exchange Bldg.,
San Francisco, Cal.

DESIGNED AND BUILT BY SPECIALISTS

Southern Representative:
Fred H. White
Independence Building
Charlotte, N. C.

Canadian Representative:
W. J. Westaway Co.
Westaway Bldg., Hamilton, Ont.
275 Craig West, Montreal, P. Q.



TOLHURST
REG. U.S. PAT. OFF.
CENTRIFUGAL
EXTRACTORS

TOLHURST MACHINE WORKS ESTABLISHED 1852-TROY, N.Y.

Locating Bad Work.

EDITOR COTTON:

A question asked me a few days ago by a man whom I know to be a competent boss weaver was, "Where does all the bad work come from that I see in the cloth." This question has inspired me to try to give my ideas through the columns of your valuable paper, thinking perhaps they will help some fellow out. This being a question that requires so many answers, any fellow who has the nerve to try to give the information should be forgiven if he happens to forget something, and not be sent up for life if he seems to make mountains out of mole hills.

The question could be answered and the article finished before I get to the bottom of my first page by saying that the bad work starts at the cotton patch and stops after the goods are baled, as anywhere there is carelessness there will be bad work, no matter whether it be in a cotton mill or an automobile factory. Such an answer, however, while true, is not satisfactory, as each process contributes its part in producing bad work, and the causes should be taken up in detail at each process and shown up as they really are. This is my opinion, and if I succeed even in part, I shall feel that I have accomplished some good. It is a hard thing for a man to tackle when he takes a pencil and paper and tries to tell in half a day everything he has learned in thirty years of practical experience, but that is what I am going to do. I am going to start at the cotton patch to show up the several causes for bad work.

As everyone engaged in the manufacture of cotton knows, we have all been up against some tough problems in the last two years, due to the fact that the weather conditions have forced the coarse and medium count mills to accept cotton of shorter length staple than they had been using, which necessitated rearranging nearly all the settings of rolls. Twist per inch, and in some cases the weight per hank increased in order to keep the average production up to what it has been in the past. At one time the scarcity of cotton forced several mills to buy what they could, which in a good many instances forced the use of a mixture of various length staple, which caused bad running and bad work throughout the mill. So these are a few instances in which the cause of some of our trouble started in the cotton patch.

The Mixing and Opening Room.

The next in line for consideration is the opening room and the system employed in getting the bales of cotton into laps. Mills that have the facilities for opening, mixing and conditioning their cotton are the ones that have the best running work and the least amount of bad work. Cotton, especially that heavily compressed, should be opened at least twenty-four hours before using in order to let it come back to its natural shape and condition as near as possible. In selecting the cotton for the day's mix every bale should be examined, to see that none of the extra long staple should get by, as this causes bad effects in the drafting, also in the twist of the roving and yarns. There is a considerable difference of opinion as to how much variation in the staple the roving and yarns will stand without any serious effects. But I will say that I have been forced to use cotton from ¾-inch to 1 1/16-inch and got by fairly well, but not nearly as well as when my mix was ⅞-inch to 1-inch. The roving and yarn is much smoother and evener on the latter and runs better at the roving and spinning frames.

Invariably, lumpy work can be traced partly to the mixing room. Of course there are several things that will cause lumpy or uneven work, but the starting of it is in the mixing of the cotton. To prove this, if the roving and yarns are lumpy and very uneven at short intervals and the yarn rolls are set for 1-inch staple, just pick out a bale of cotton as near that length as possible, run it through the different processes separately and note the difference in the appearance and the quality of the roving and yarns.

Cotton that is too damp or wet, can never be cleaned properly, as the leaf and foreign matter adheres or clings to damp cotton considerably more than it does to dry cotton. The production of the machines also governs the cleanliness of the stock, and where the goods used are below middling, and the machines pushed to full capacity, the cotton should have at least one cleaning before starting through the breakers. This relieves the cards to some extent, as there will be less leaf and dirt for them to take out, which will allow more production per card if necessary. In fact, nearly all the foreign matter should be removed from the cotton before it reaches the cards, and it is in mills that give the proper attention to the opening, mixing and picking section. The more attention given to these departments, the more it pays in the end.

Some mills take their lap ends, drawing, roving and spinning waste and put it in the cotton mix, which if done carefully and evenly is a very good way, but in mills that haven't the space required for such a mix this cannot be done, and the waste has to be made into laps—usually some cotton added to avoid splitting—and run through the intermediates and finishers with all cotton laps, usually making a finished lap of 12 or 6 per cent waste. In order to avoid bad effects, such as split laps, uneven numbers and weak spots in the roving and yarns, it is necessary that all the finished laps contain as near the same amount of waste as possible, and the less they all have the better the results will be. If the waste is made into breaker laps as stated in the foregoing, there is no need of using the lap ends this way unless it is so desired, as they can be fed into the breakers like the rest of the cotton. A finished lap containing only 6 per cent of waste will hardly give any trouble either in splitting or bad work, and will just about take care of the waste in a mill making coarse roving and yarns that is pushed to capacity.

Intermediate and Finisher Pickers.

The part these machines play in producing bad work that shows up in the finished product usually comes from thin and thick places in the laps, which are caused by several things, chief among them being careless apron hands that do not lap the aprons properly, doubling them in some cases and letting the aprons run sometimes with only two laps on them, sending laps to the cards weighing either too light or too heavy, and in a great many cases both extremes. This shows up in the roving and yarns and is noticeable in the variation of the numbers, affects the running of the work to some extent and gives the cloth an ugly appearance, visible mostly in the warp which shows plainly the light and heavy threads.

Other causes for these thick and thin sections of the lap can be traced to defects in the machinery, such as loose gears, poor evener action, fan draft too weak, slack aprons,

Mr. Thomas A. Edison

speaks to the point—

"The time is coming when every man who lays any claim to business ability will have to keep the question of waste before him as constantly as he does those of credit, collections, buying and selling."

Waste in spooling is profitably corrected by Lestershire *Vulcanized* Fibre Spools

Reduce direct labor costs.

Eliminate your spool replacement expense.

Eliminate loss of yarn due to spools (in many mills this loss runs into thousands of dollars).

Eliminate all possibility of injury to employees from rough or slivered spools.

Increase about 10% the yardage on your spools.

Eliminate Spooler knots due to spools.

Eliminate broken ends on your warpers due to spools and thus increase warper production 20% to 30%.

Materially improve the quality of your warps;

And thus better the quality and increase the production in your weave room.

WARPER SPOOLS for Immediate Delivery.

In order to give those of our customers who use standard sized Warper Spools the benefit of immediate deliveries, we endeavor to carry on hand for quick shipment a stock of 4x5½, 4x6 and 4x6½ spools.

LESTERSHIRE SPOOL & MFG. CO.

146 Baldwin Street
Johnson City, N.Y.

Southern Office
519 Johnston Bldg.,
Charlotte, N.C.

Sample Lestershire Spools for trial on your machines gladly furnished on request

etc., all of which if wrong either separately or together cause unevenness in the roving and yarns and spoils the appearance of the cloth. A picker, like all machines, has a limit to its production, and where quality is desired the production must be governed according to the quality of the stock being used. A perfectly even sheet is hard to produce on any picker even with a reasonable production, and much harder if the feed is too fast and heavy for the action of the evener and the capacity of the fans. They must be suited to each other or a lap full of defects in the sheet such as holes, thick and thin sections, lumps, etc., will be the result, which will be the cause of much unevenness of the roving yarns and cloth.

Bad Work at the Cards.

It very seldom happens that one can go into a card room and find all the cards doing what might be considered good work. Some of them will have one fault and some another. If all the cards are kept in first-class condition and a careless operator is in charge, there still will be a good deal of bad work that finds its way into the cloth. This comes from bad splicing when putting on new laps and cleaning and piecing in the front. Other bad work may be caused by the cards being in a run down condition in whole or part. Dull clothing, loose or bruised wire, bad feed plates, and bad lickers-in that have bent wires and low places. Running surfaces not set close enough. All of these have their part in the making of the goods, and if allowed to exist too long before remedying will show up in the work, causing a sacrifice in the quality. Letting the cards run too long before stripping will also produce bad work. A good rule that I have found is to strip the card one time per day for every 50 pounds of cotton carded, as it is reasonable that the greater the production the more stripping it will require. The pounds that are carded should depend on the quality of stock used and the quality demanded in the finished product.

The Duty of the Drawing Frames.

As we all know, these machines are intended to parallel the fibers and even the weight per yard by running several card slivers together, drawing them out and then repeating the process a second and sometimes a third time. This is supposed to prepare the card sliver for the roving machines by bringing the great variation in card sliver to a marked degree of evenness, and without these machines our task would be a hopeless one, as no one so far has been successful in taking the stock directly from the cards to the slubbers. Then as the correct doubling and drafting at these machines being the essential points for good work, makes it necessary that they be as near mechanically perfect as it is possible to keep them, also that the piecings be done properly and all light, lumpy or heavy places be kept out of the work so that it won't find its way to the slubbers.

The stop motions should act promptly when an end runs out, or the result will be light drawing. The calender rolls should take up the stock regularly and evenly from the front roll, but not stretch it. The tension should be only enough to take up the slack and not allow lumps to go into the trumpets, which if too large in the bore allows the lumps to go on through into the can and get into the slubber. A correct trumpet bore for the weight of drawing being made is of considerable importance, and if, for any cause, the trumpets become too large in the bore they should be replaced with new ones of a proper size. For 60 grain sliver the trumpet bore should be about 125 mills or ⅛ of an inch in diameter. But some carders prefer slightly larger. To get good even running sliver the rolls should be kept in first-class condition. No damaged rolls should be allowed to stay in the frame, as they continue to make bad work as long as they are allowed to run. The speed of the frames should be as low as is consistent in keeping up with the cards. Usually one delivery of drawing is allowed per card, and if the doubling is six into one, the surface speed of the back roll should be 1/6th of the coiler rolls of the cards plus allowance for stoppage which is usually about 20 per cent.

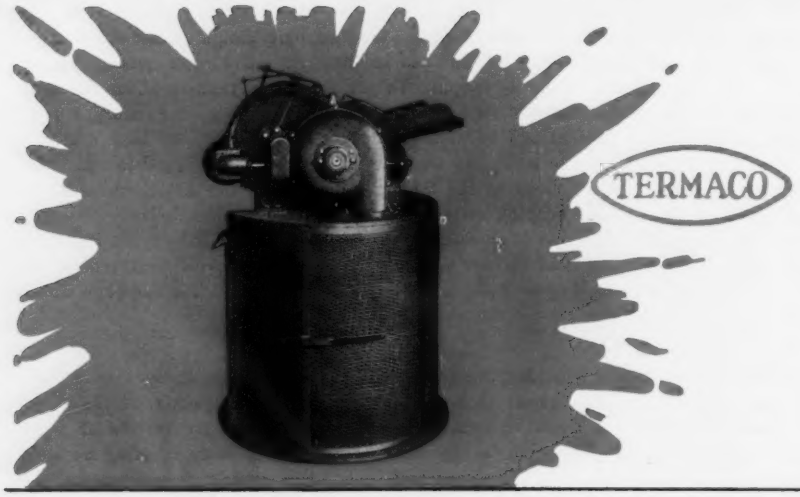
Fly Frames.

Anything that takes place at the slubbers or roving frames that in any way lowers the quality of the sliver can be considered bad work, and is the reverse of what should be expected of them, as the more doubling we have the more even and smooth the product should become. If this is not the case there is something wrong somewhere. It may be in the way the operative does the piecings or it can be in the fault of some part of the machine or several things combined; some of them being too much draft of the rolls, worn or damaged rolls, spacings of rolls not suitable for the stock being used, tension too tight between the front roll and bobbin or too slack. Uneven tension caused by bobbins being of various sizes in diameter, roving traverse working poorly or not working at all.

In my opinion, while everything needs attention and should be kept right at all times, the tension should have the benefit of the most careful observation. To prove this, if one will take one frame several times per day, or several frames, and make the proper tests, he will find conditions that a careless eye will never detect. For instance, we all know that no matter whether it be roving or yarn, any stock that has twist inserted into it will contract in length, and this being the case, roving with standard twist will contract somewhere near two per cent. Now if we take as the diameter of the front roll say 1¼-inch which makes the circumference $1\frac{1}{4} \times 3.1416 = 3.927$ inches, the stock delivered per 100 revolutions should be $3.927 \times 100 = 392.7$ inches $\times .98 = 384.94$ allowing two per cent contraction.

The proper tests I have referred to is to see just how much tension a frame retains throughout the doff; also see how much variation there is in the tension of the different frames. For instance, say we have 30 speeders on 2.00 hank roving and we make a test on speeder No. 1, the roll being 1¼-inch in diameter and allowing two per cent contraction. We stop the frame, mark the roving at the bite of the roll and count exactly 100 revolutions of the roll. Stop the frame, mark the roving at the bite of roll, start the frame up, run the frame until the 100 revolutions of roving which is between the two marks is on the bobbin. Now if we take this bobbin to a roving reel and we find after running it off we have 385 inches, we will have practically no tension at all on the roving, but if we find we have 393 inches the gain in tension is about two per cent.

Now if tests are made on the frames it will be found that no two of them will be exactly the same all the time. Two per cent tension means that instead of the roving weighing 50 grains average for 2.00 hank, it will only weigh 49½ with the tension increased. It is not so bad if the tension didn't get any tighter, but such usually is not



Each Termaco Dollar Returns $1.30, or more, every year

Don't figure the cost of a Termaco Roving Bobbin Cleaner as an expense. Figure it as an investment . . . one that pays for itself in less than a year's time . . . and then goes right on making money for your mill year after year.

The actual certified findings of the A. C. Nielsen Company, a neutral engineering firm, of Chicago, show a 12,000 spindle mill secures an annual net return of 130% on the original cost of its Termaco. Another survey, made by the same firm, shows a 44,000 spindle mill secures an annual net return of 314% on its Termaco investment.

Complete copies of Nielsen Survey No. 13, covering a 12,000 spindle mill, and Survey No. 10, covering a 44,000 spindle mill, will be sent free for the asking. Please state which survey you are interested in.

These are not two isolated cases but are typical examples of how Termaco bobbin cleaners are paying for themselves over and over again by the savings they effect for many famous mills, both small and large, in the United States, Canada and abroad.

It is not so much a question of whether a mill can afford a Termaco installation. It is rather a question if any mill with roving bobbins to clean can afford to be without one.

Our Engineering Department, without the slightest obligation upon your part, will gladly give you unbiased figures showing how quickly a Termaco will pay for itself in your mill . . . and pay handsome dividends on its cost.

Just drop us a line, stating you would like to see such figures.

The TERRELL MACHINE COMPANY Inc.
Charlotte, North Carolina

the case, and if not watched carefully this tightening will at times pull the roving full of thin places, which causes considerable trouble at the spinning frames and looms. As a rule the average roving frame will stand a great deal of tension on the ends before they will commence to come down to any great extent, especially if the roving contains much over standard twist. This being the case it requires a trained eye to detect the changes in the tension from time to time, which is usually caused by the changes in the weather.

The Spinning Frames.

This being the last process that draws out and increases the length of the roving and inserts the required amount of twist per inch for the different numbers. Like the other processes, it contributes its share of bad work that slips through the spoolers, warpers and winders and shows up in the cloth. This bad work comes from several causes, but mostly, as usual, from the carelessness of someone. Any yarn that does not possess the necessary qualifications for producing good cloth, can in my opinion, be considered bad work. An even thread properly twisted will always have the standard breaking strength and will weave well and make good cloth if handled carefully at each process before it reaches the loom. The bad work that can be traced directly to the spinning frames, and the operatives attending them, are bad piecing, bad creeling (lapping the ends of roving when putting in new roving), dirty thread caused by getting loose lint on it while cleaning, especially the roving, and wiping off guide boards and roller beams. Fanning of frames and brushing the ceiling and pulleys while frames are running will also cause bad work.

When cleaning scavenger rolls or under clearers behind the doffers, if the spinners let the dirty rolls touch the ends, this will also get particles of loose lint in the work, and if not caught at the spoolers will invariably give trouble at the loom. Other bad work, such as soft spots can be traced to certain bobbins that slip; also to dry or gummy bolsters that retard the speed of spindles at intervals, just enough to weaken the thread but unnoticed sometimes and allowed to run in this condition and produce weak yarns for an indefinite length of time, assuming that the rolls are kept in good condition. Bad work coming from the rolls can be caused first by too much draft, improper spacing of rolls which causes unevenness, weight levers touching the creel boards, roving traverse too short or standing still, which causes lumps and cut places in the work. Bad creel steps and broken and blunt ended skewers tend to stretch the roving and cause weak and uneven yarns.

Travelers that are too light will let weak places go by, and this will also help to make the looms run bad, which of necessity will help to produce unsatisfactory cloth. If one would take time to consider the requirements of the stock, machinery, and the operatives throughout the mill, to produce first-class work and then make a comparison of some of our methods, they would see that it is a wonder we get as good cloth as we do. And if the mills would install or create a research department with a competent head, it would not be so long before the bad work would begin to disappear. This would not only raise the quality of the goods but would increase the earning capacity of the mills.

K. M. F. (LA.)

To Stop Pin Holes in Duck.

EDITOR COTTON:

I don't claim to be a weaver by profession, but I will try to answer "Contributor No. 13" on page 556 of the April number of COTTON.

First, I would say that I saw this done by a boss weaver. He stopped the pin holes in a piece of goods he was weaving in this way:

He raised the shade of one side of the goods a little more than the other by working one section of harness a little lower than the other, which drew half of his warp a little tighter than the other half. When the filling had passed through the shade to the opposite end of the race plate this allowed the lay to pack the filling clear up to the required depth in the shades and fill the openings which we call pin holes. Judging from his letter, "Contributor No. 13" has both his harnesses working parallel, with the same tension on both strokes and this tension on his warp is too tight. If he will slacken on one of his harnesses a little it will, I think, remedy his trouble, so far as pin holes are concerned.

In regard to the strength of his filling, will say that it is not always the standard twist that gives the best results or the best breaking strength. I do not know what grade of cotton he is running nor what his cylinder or spindle speed is in the spinning room. If I knew this I believe I could give him a remedy that would help the breaking strength on his filling, and if what I am going to say here does not help him in the breaking strength of his filling and he will let it be known through COTTON as to his spindle and roller speed, the size of his rings, his roller settings and the grade of cotton he is using, both as to staple and grade, I am sure if I cannot help him, some of the good spinners that take COTTON can. However, I did this at one time. I cut the spindle speed 400 r.p.m. and put the steel roller speed back up to where it was before, and I allowed the filling to age under humidity two days at least in a conditioning room before using it, and longer if I could, but two day's supply ahead was about as far as I could keep ahead of the weaver, and I found it broke stronger and stopped kinky filling. The weaver said it helped him wonderfully.

There will be no harm in this contributor trying this in his case, and if it does not help him I would like to hear from him, as previously mentioned.

J. F. L. (ALA.)

Roving Twist and the Weather

EDITOR COTTON:

"Contributor No. 3025" has brought to our attention one of the most reliable and staple excuses in the cotton business. His letter appears on page 799 of the June issue.

The old line, "It's the weather", is about as ancient as the original Ford joke. Yeh! It even dates back to the first mother-in-law side splitter.

While we concede that the weather must be taken into consideration in the card room, there is no excuse for turning out bad work every time we have a shower, or a frosty morning, etc.

Of course the weather is most unfavorable to carding during the warm, sticky hot weeks of July and August.

For More and Better Work

Banish that GLARE!

All We Ask is ~*Just Try It*

Entirely at OUR RISK

Write for a FREE Sample of "Skyco No-Glare"

Glare, heat, eye-strain, headaches, irritation, sagging muscles and dragging work—all these things that slow up production and leave your workers fagged out, result from hot, glaring rays of the sun pouring in through unprotected glass. All this can be prevented—easily. Coat your glass with *SKYCO No-Glare*, which softens the tiring glare and admits a cool *diffused light*. Glare is eliminated. You can even *look* at the sun. Actual thermometer tests show heat is reduced from 10° to 15°. Yet 94% of light intensity is maintained.

Goes on OUTSIDE of Glass

—yet rain or weather conditions do not affect SKYCO No-Glare. Neither will it rub, or flake off. Yet you can remove it easily with warm water and a brush. *Just as effective if applied on inside of glass.*

Surprisingly economical—a single gallon covers from 700 to 800 square feet of glass and stays on from 4 to 6 months. Price $2.50 to $3.50 per gallon (depending on quantity). It is guaranteed by the makers of the famous *SKYBRYTE (Liquid and Powder) Glass Cleaners.*

Special Free Trial Offer

To convince you of how economically and effectively you can banish glare and reduce heat with *SKYCO No-Glare*, we invite you to try it at our expense. We don't ask you to risk any money or obligate yourself in any way. Just write on your firm stationery for generous FREE sample and then determine from results if you can afford to be without *SKYCO No-Glare.*

THE SKYBRYTE COMPANY
11th Floor Hanna Building, Cleveland, O.

CHICAGO BRANCH:
104 So. Michigan, Ave.

Reduces Heat 10° to 15° — yet 94% of Light Maintained

SKYCO NoGlare

Saves Expense of Window Shades

At these times the poor carder runs around like a wild man, and everybody sort of catches his contagious condition. You know, everybody gives everybody else a dirty look on the sly and cusses under his breath.

But with a carder who knows his stuff, things go on, if not entirely normal, at least bearable. He will put on a little more twist to start with. Most card rooms run with barely enough twist in the first place, not that I advocate high twist, but I do say that a reasonable factor of safety should be maintained to insure proper running out in the creel at the next process. Sometimes opening the rolls helps somewhat.

In a good many instances, when the intermediates and slubbers were roller lapping so that it was almost impossible to keep them going, the fault was remedied as follows:

The steel rollers were rubbed well with whiting, then underclearers were put on the frames and whiting dusted in the felt of the underclearers. The results were surprising. The fine frames will generally run along all right, though it is well to add a little twist in some cases.

Some cottons require more twist than others, under normal conditions. For instance, Mississippi requires more twist than does Texas. Any fiber of a harsh nature will run with less twist than will a smooth, silky cotton.

"Contributor No. 3025" should sure have everything rosy on 11.50s. I should sympathize with him if his carder were making 20 or 30 hank for him.

C. C. (N. J.)

Up-Stroke Buckley Beaters.

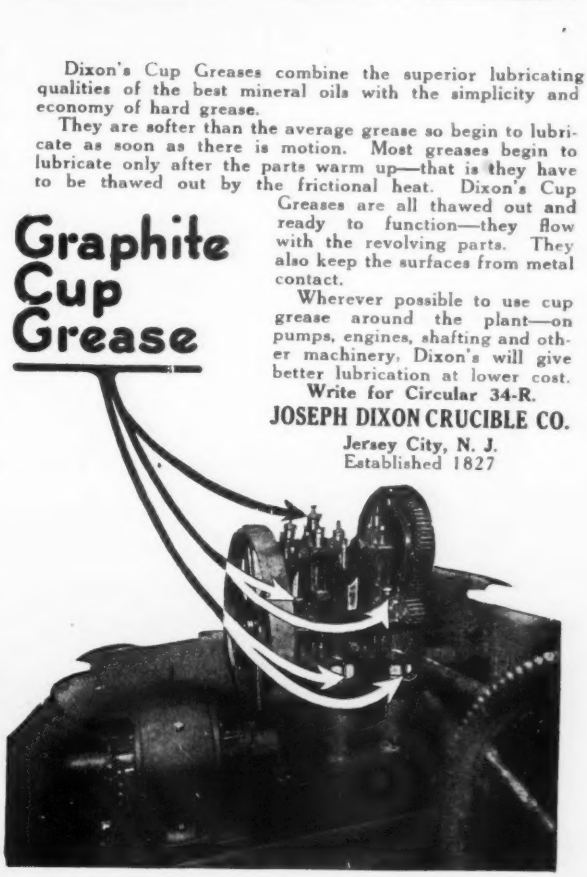
EDITOR COTTON:

I do not know that I can give your inquirer any very authoritative information about the use of the up-stroke beater, as there are comparatively few of these now in use in this country, although they are gaining in popularity. Most of those so far installed here have been English machines employed on long staple cotton, and not in tandem with Crighton openers. The idea of using a Buckley cylinder to break up the cotton for the Crighton is very common in English picking equipments, where hard-compressed cotton is the rule, and a Crighton is used for each Buckley; the total production being limited by the proper capacity of the Buckley, and not that of the Crighton.

An American opening system usually demands a higher production from the Crighton, where one of these machines may feed four or five hoppers, and if your contributor is trying to use the Buckley to feed a Crighton on a production greater than a Buckley will properly handle, he will never get as satisfactory results as he may have been led to expect. A Buckley should not handle over 4,000 pounds of cotton per day to give best results, where a Crighton will often put through 12,000 to 15,000 pounds, and do very good work.

If the production is around 4,000 pounds a day, there is no reason that I can see why this man should have much trouble getting good results with the same settings that would be used on the ordinary down-stroke machine. These would be about ¼-inch from beater arms to feed rolls, ⅝-inch to ¾-inch from beater arms to grids, and a fairly wide open grid setting. The speed will depend on the size of the beater. For a 40-inch cylinder, the speed will be from 350 to 450 r.p.m., and on a 30-inch beater, about

ALLIGATOR
TRADE MARK REG. U.S. PAT. OFFICE
STEEL BELT LACING
Steel-end your Belts
and use sectional hinge pins & steel
"JUST A HAMMER TO APPLY IT"
BELTS steel-ended with Alligator Steel Belt Lacing and joined with Alligator Sectional Steel Rocker Hinge Pins are exempt from most belting troubles.
This smooth hinged lacing gives long, efficient service on all kinds and sizes of belts. Use Alligator Steel Belt Lacing confidently on your belt drives.
Consultation invited. Sold the world over by the belting, mill supply and hardware trades.
Flexible Steel Lacing Co.
4619 Lexington Street
Chicago, U. S. A.
In England at
135 Fimsbury Pavement,
London, E. C. 2


Graphite Cup Grease
Dixon's Cup Greases combine the superior lubricating qualities of the best mineral oils with the simplicity and economy of hard grease.
They are softer than the average grease so begin to lubricate as soon as there is motion. Most greases begin to lubricate only after the parts warm up—that is they have to be thawed out by the frictional heat. Dixon's Cup Greases are all thawed out and ready to function—they flow with the revolving parts. They also keep the surfaces from metal contact.
Wherever possible to use cup grease around the plant—on pumps, engines, shafting and other machinery, Dixon's will give better lubrication at lower cost.
Write for Circular 34-R.
JOSEPH DIXON CRUCIBLE CO.
Jersey City, N. J.
Established 1827

Underwritten by GDC

QUALITY in dyestuffs! Planned for by combining remarkable resources of men and technical facilities; secured by bringing to the manufacture of dyestuffs essential facts gleaned from many years of operation of the outstanding component companies.

Now this unusual dyestuff service is at your disposal. Its use broadens the excellence and attractiveness of your products. And the employment of G D C dyestuffs precludes the possibility of dyeing troubles.

Quality, when underwritten by G D C, is a certainty.

GDC

We offer the products manufactured by

GRASSELLI DYESTUFF CORPORATION
ESSEX ANILINE WORKS, INC.
BEAVER CHEMICAL CORPORATION
(Alizarine Products)

and the dyestuffs manufactured by

I. G. FARBENINDUSTRIE AKTIEN-GESELLSCHAFT
in their several factories

BADISCHE ANILIN & SODA FABRIK
LUDWIGSHAFEN, GERMANY

FARBWERKE vorm. MEISTER LUCIUS & BRÜNING
HOECHST a. M., GERMANY

FARBENFABRIKEN vorm. FRIEDR. BAYER & CO.
LEVERKUSEN, GERMANY

LEOPOLD CASSELLA & CO., G. m. b. H.
FRANKFURT a. M., GERMANY

AKTIEN-GESELLSCHAFT FÜR ANILIN FABRIKATION
BERLIN, GERMANY

CHEMISCHE FABRIK GRIESHEIM-ELEKTRON
FRANKFURT a. M., GERMANY

CHEMISCHE FABRIKEN vorm. WEILER-TER MEER
UERDINGEN, GERMANY

New York Office
230 Fifth Avenue

BRANCHES

BOSTON
159 High Street

PHILADELPHIA
111 Arch Street

PROVIDENCE, R. I.
40 Fountain Street

CHICAGO
305 West Randolph Street

SAN FRANCISCO
22 Natoma Street

CHARLOTTE, N. C.
220 W. 1st Street

GENERAL DYESTUFF CORPORATION

500 to 600.

I could probably help him more if I knew just what trouble he is having. If he thinks he is taking out too much stock with his Buckley. I would suggest that he examine the motes closely, and see if the apparent loss of stock is not really a mass of very short, neppy fibers that he is better off to get out early in the process. If he is having trouble with the machine choking up, he should get his draft regulated properly. A fairly powerful draft is required to operate a Crighton correctly, while a lighter draft will be better for the cylinder. If he has a heavy draft pulling on the Buckley, it should be lessened by opening up a hole in the flue connecting the Buckley with the Crighton; letting in air beyond the Buckley to operate the Crighton. The size of this hole should be varied until the proper draft is discovered. This assumes, of course, that the two machines are direct connected, and operated without a screen section in the Buckley.

It is perfectly feasible to run a Buckley at high production to simply break up cotton, but if it is run at this production, the same cleaning results must not be expected as at normal conditions. M. C. (MASS.)

Why the Yarn Breaks at the Spinning.

EDITOR COTTON:

In the April number of COTTON "O. P. (N. C.)" asks, "What is the matter with this spinning." I would like to tell him the cause and remedies as I see it.

From the layout he gave it is easy to see that his poor spinning is caused by excessive drafting on his drawing, slubbing and roving frames.

It is a well known fact that the attenuation of fibers, or in other words the amount of drafting must be restricted to the length of the staple being run. If the end of one fiber has passed between a pair of rolls before the next fiber has passed into the bite of the same rolls there will be jerky work. This is what long draft spinning is trying to overcome.

Inch cotton is a good staple for 13s yarn but poor for the draft he is running.

To give a man a suitable layout, not knowing the condition he is running under, is almost impossible because the production required and the machinery at hand that must turn off that production determines everything. However I will try to give "O.P." a suitable layout which will make his drafts o. k.

He is running a twelve ounce picker lap which is all right. He should make sure that the evener motion is sensitive and that the machines are kept clean. They should be well scoured every four to six weeks.

If the mill is small the picker boss should weigh every lap, and if large should weight as many as he has time for, at least one in every four laps. The overseer should weigh individual one yard pieces of lap occasionally to make sure that the pickers are running evenly.

On the card "O. P." produces a 57 grain sliver. Allowing 5 per cent for waste this makes a draft of about 87.5 which is too small. Increase this to 110 and produce a 50 grain sliver. The longer draft will do better cleaning and produce evener work.

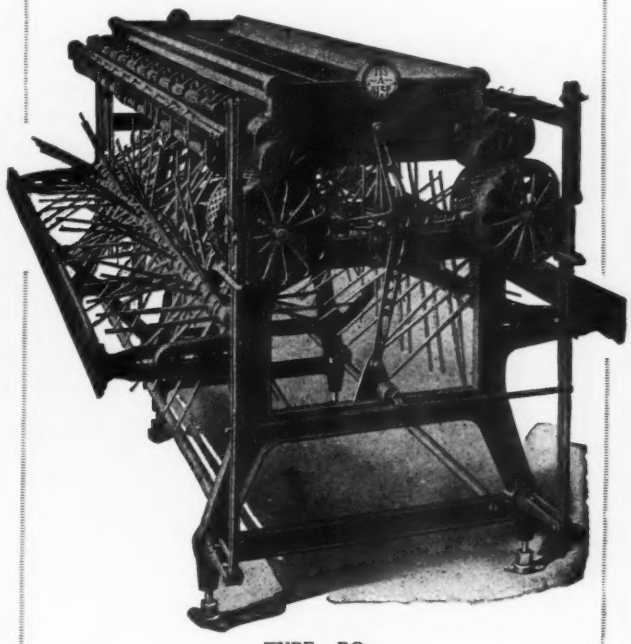
On the breaker drawing use a draft of 5¼ instead of 5.7. This will result in a sliver of 56 grains. On the finisher, draft this sliver 5¼ instead of 6 making a 64 grain

WINDING

Warping and Special Machinery

FOR RAYON

The Ideal Winder for Rayon. Can also be used for Silks and Single Mercerized Yarns.



TYPE—BO

Steel pipe frame construction and patented rigid traverse motion

An interesting model can be seen and explained at our office

THE SIPP MACHINE CO.

PATERSON ITS A SIPP TRADE MARK **NEW JERSEY**

Southern Representative:
GIBBONS G. SLAUGHTER
Johnston Bldg., Charlotte, N. C.

sliver. In no case should anyone exceed that draft on inch cotton.

Coming to the slubber we find that "O. P." has a draft of 4.92 which is very large. I would advise cutting this down to 4.25 thus making a .56 hank roving.

On the fine speeder I would cut the draft from 5.88 to 5.31 making a 1.50 hank roving. This will result in a draft of 8.66 on the spinning frame which will not be very great.

This layout makes the slubber and speeder roving coarser and will run ahead of the spinning room if the back work will keep up.

It would also be advisable for "O. P." to size his finisher drawings twice daily, and change according to the trend of the work. This will keep his roving nearer even.

In many cases it is too late to change on the fine speeders when heavy or light work comes through.

If the cards and drawing frames cannot keep up I would advise making the picker lap slightly heavier and keep all drafts the same. This will heavy up the work and keep the room better balanced.

It would be wise to advise that "O. P." take notice to the back and middle steel rolls on the drawing and roving frames, making sure that they do not have various thicknesses of clearer waste wrapped around them. This causes uneven drafting, causing uneven, dirty and slubby work. This is usually caused by too wide roll settings and must be looked for on inch cotton as the rolls cannot be set too close.

The drawing frame should be scoured every two months at least. The steel rolls on the speeders should be scoured every six months. The rails on the speeders should be scoured and well greased in the bearings every year, and not after a fire as is usually done. The lifting motions should be oiled often so that the rails do not dwell any.

The leather rolls should be looked after, also the clearer cloths.

Not being a spinner I will not try to give any information on his faults there, but I do know that if he gives the card room the right amount of care his spinning will improve wonderfully. R. O. (MASS.)

Card Setting and Stripping.

EDITOR COTTON:

Having read with interest the various letters in COTTON concerning cards, tight and loose gauge setting, progressive setting of the flats to the cylinder, and the merits of vacuum and brush stripping on cards appearing during the last few months, I would like to express my opinions and enter them into this discussion and see what the readers of COTTON think of them.

First, regarding the tight and loose gauge setting, will say, speaking mechanically there should be no tight and loose gauge setting. If a man is setting to 10/1000s then he should use a 10/1000s gauge, or to a 9/1000s if he should decide it should be set to that, or to any other, and then set that point it is intended for to the best of ability to the gauge used. If another fellow comes along and puts his gauge in and then says it is too tight or too loose it is because he does not have the same feel as the other man, for two card grinders are rarely found with the same sense of touch. I say that if a man is afraid or does not want to set to a close gauge and knows it to be so, then he should get a gauge one or two thousandths either larger or smaller. I have seen some men set the flats with the card gauge as square to the cylinder and flats as possible when feeling and setting.

In writing of progressive setting I wish to say that at one time I used to lean towards that method of setting a little, but from my experience on carding I am an advocate of the standard setting at all flat setting points, for by using the latter method the carding field is being increased and not leaving all the carding to take place at the flats nearest the front of the cylinder where some men claim the best of the carding takes place.

A great number of card men use the progressive settings due to the amount of cotton fed into the licker-in by the feed roll, and think it best to card the cotton gradually; also some are under the impression that there is more cotton between the flats and cylinder at the points nearer the licker-in than at the points nearest the front of the cylinder, but such is not the case, if so, it is mighty little and cannot be noticed with the naked eye, if it were possible to see at all. Do those who use progressive settings realize how much cotton is being continually taken by the licker-in from the bite of the feed roll and plate and being deposited by the licker-in onto the cylinder? How fine is the sheet or web of cotton, as you may call it, in comparison to the thick sheet being fed between the feed roll and plate. One has only to consider the speed of the feed roll and the speed of the licker-in with in the neighborhood of two million points on the licker-in passing the nose of the feed plate per minute to realize how fine it is reduced.

A good way to see how fine the sheet of a lap behind a card is reduced is to cut out the feed and turn the feed roll back, then look at the tip or fringe of the lap and see how even it is, just as if some one had been stapling it. It goes to show that the licker-in does not pull the cotton away in such large bunches or lumps as some persons would have us think; for if the cotton were pulled in bunches then the cotton would not be even across the width of the cylinder, and the flats would not be evenly filled as they left the cylinder, at the front to be combed by the flat comb. It also shows what happens when the tail end of a lap is allowed to go through the feed plate roll or the lap end is an extra bad one or doubled in one place. The licker-in then takes bunches and lumps around to the cylinder and flats and the latter start doing the St. Vitus dance or the Charleston, simply because those bunches have not been opened sufficiently by the licker-in But it is not always the lumps in the tail-end of the lap that cause the flats to shimmy, it is the cotton that is drawn through the feed roll and plate in lumps when the hard end of the lap is under the feed roll, otherwise if it were possible to have the same grip on the cotton the full width of the feed roll when a hard end goes through, then the licker-in would undoubtedly continue to card the cotton the same as usual with a slightly heavier sliver at that point of the web where the hard lump or bunch was located.

Another point to consider is, every card man knows how the flats do jump whenever an unusual tail-end of a lap goes through, due to lumps and bunches being deposited on the cylinder by the licker-in. Then why do not the flats jump when using a heavy lap if the licker-in takes the cotton from the feed plate nose in bunches? I have seen 12 or 13 ounce laps running through double without the flats

THE NEWPORT PRODUCTS

"Coal to Dyestuff"

Quality Counts

You can make no mistake buying
Newport Quality products—

Anthrene and Thianthrene Colors
Anthraquinone Blue Black B
Fast to Light Direct Colors
Isomerpin—Neomerpin
Larvex

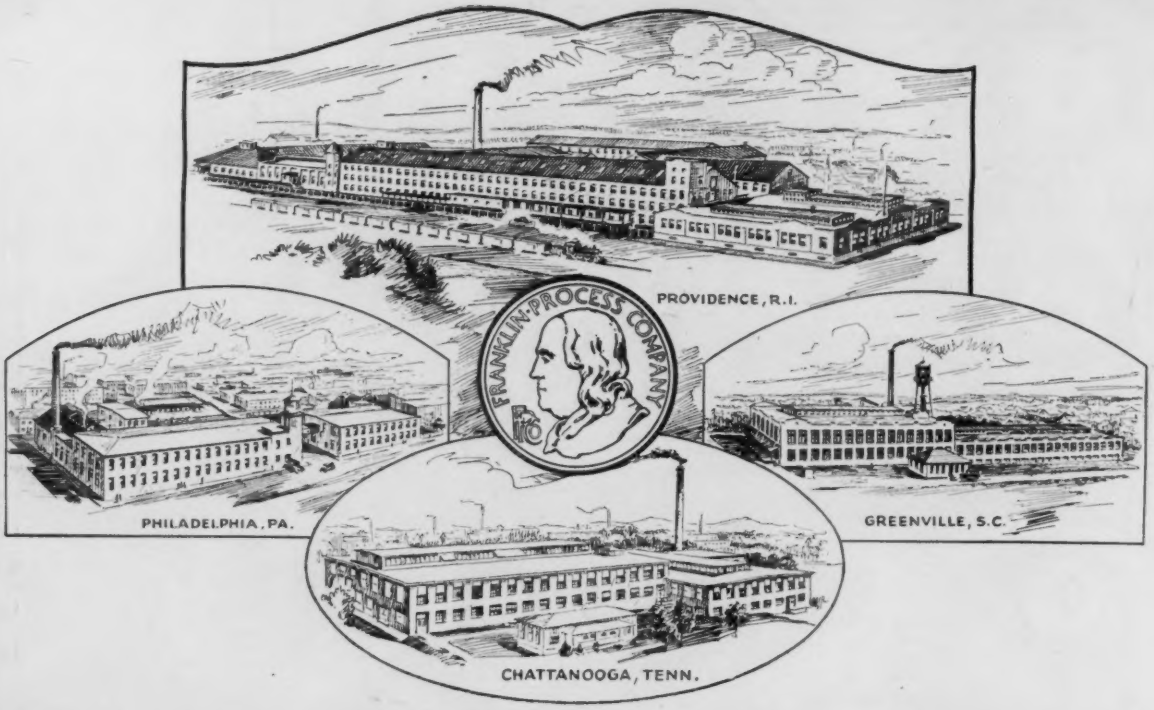
Quality Service keeps pace with Quality Products

NEWPORT
TRADE MARK
"COAL TO DYESTUFF"

Newport Chemical Works, Inc.

Passaic, New Jersey

BRANCH OFFICES AND WAREHOUSES:
Boston, Mass.; Providence, R. I.; Philadelphia, Pa.; Chicago, Ill.; Greensboro, N. C.; Greenville, S. C.



300,000 POUNDS PER WEEK

What this largest Commission Yarn Dyeing Capacity Means to You

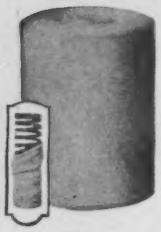
THE fact that the Franklin Process organization has the largest commission yarn dyeing capacity in the United States is an indication of ability to handle orders efficiently and promptly. Otherwise how could attainment of such size have been possible?

In addition to size there is the added advantage of location in four strategic textile centers,— Providence, Philadelphia, Greenville, S. C., and Chattanooga, Tenn.

The Franklin Process organization also offers a variety of service. We are yarn spinners, yarn merchants and manufacturers of glazed yarn as well as yarn dyers. We dye woolen, worsted, cotton, jute and hemp yarns. We also offer to the trade a special laboratory service in connection with the creation of new styles.

The Franklin Process organization can offer better than average service not only because of its size but because its method of dyeing is quicker than older methods. In many cases customers' yarn is carried in stock wound on Franklin tubes, all ready for the dyeing machine. Dyed yarn is shipped out on these same tubes and can be warped in a creel or rewound to filling bobbins without any preliminary operations. Franklin dyed yarn, being in the wound form at all times, is unchanged in twist and freer from knots.

Our de luxe book, "The Franklin Process — Its Contribution to the Textile Industry," gives all the facts. Write for your copy today. No obligation.



The FRANKLIN PACKAGE

FRANKLIN PROCESS COMPANY

Dyers of cotton, woolen, worsted, jute, hemp and linen yarns and silk noils, also yarn spinners and manufacturers of glazed yarns.

OFFICES

Main office and plant
Providence, R. I.
Branch plant at Philadelphia

New York Office
66 Leonard Street

Southern Franklin Process Company
at Greenville, S. C.

Central Franklin Process Co.
Chattanooga, Tenn.

FRANKLIN PROCESS

Commission Dyeing of Yarn in the Wound Form

jumping or causing a jam, simply because the licker-in does not pull the cotton in bunches, but strips it from the feed roll and plate in a fine web.

Returning to the progressive setting, I will give my reasons as to why I do not agree with the method. Many advocates claim that the last few flats at the front of the card do more carding than those nearest the licker-in, or that the cotton is in a thicker state at the rear setting points of the flats. What small flakes (if any) of cotton that is taken in by the licker-in are taken care of largely by the mote knives. Naturally if the flats at the two front setting points are closer to the cylinder a better carding effect will be secured than at those points where the setting is wider, but as there is about the same amount of cotton between the flats and cylinder at all the setting points, why leave the best or most of the carding to be done at one or two certain points?

My claim is that there is about the same amount of cotton at all setting points between the flats and cylinder, for if the cotton has a tendency to be a shade heavy or thick when it is deposited on the cylinder by the licker-in, it becomes lightened immediately it is carried under the first flat, for there is the place where clean flats begin to start at work again. I am also aware there is not a clean flat starting to work every second. As soon as the cotton is under the flats, the latter holds some of the fibers by the ends and the centers and the cylinder cards the rest of their length and then they are released by the flats due to the speed of the cylinder and the carding effect of the wire on the latter. Then the fibers are taken by the cylinder and carried maybe only as far as the next flat or two and held by any of them. And so it goes, first on a flat then the cylinder, a kind of counter-balancing all the time until the flats are passed and the fibers are carried to the doffer. If the cotton is in such a thick and heavy state as some claim, at the points nearest the licker-in, then the cotton would get more of a brushing effect in place of being carded. Therefore is it not better to have the same close setting all the way around the flats when there is the same amount of cotton at all points, and thus increase the carding field? For do not the men who prefer the progressive setting claim they get the best carding at their closest setting points, when the flats are nearest the front of the cylinder? I should like to hear what they have to say in reply to this view, or what they think of it.

Regarding the merits of vacuum and brush stripping, quite a lot of comments have been made which are of interest and value, so I will try and not repeat what has already been said, but at the same time I will give my opinion, which may bring out some interesting points on the merits of both systems.

There is no doubt about the benefit the card room operatives derive from the vacuum system as regards the cleanliness of the room, ease in handling the hose in comparison to the stripping brush, also a saving in time, labor and increased production, and it is my opinion that the system is in the cotton trade to stay, for it has sufficient supporters to hold it there and the present age calls for modern efficiency. The vacuum system is a device that is modernly efficient in many respects, being beneficial both to the mill man and operatives without injuring the quality of the finished product. How many new mills are being equipped with the vacuum stripper in preference to the brush? Most probably the persons who have charge of buying the equipment of a new mill leaned toward the brush stripper, but the progress of efficiency in the textile trade today overcame the thought and prompted the purchase of the vacuum stripper.

We all know that the vacuum has its defects just the same as the brush may have, and one may be better than the other under certain conditions. I do not doubt for one moment but what the defects the vacuum may have will be overcome. The vacuum system is young in comparison with the brush and does what is claimed for it. I do not believe that a thorough test has been made with the two to find out which is the better in every respect; by that, I mean, take the initial cost of replacements and repairs, different price of strips, cost of power consumed by operation, increased production, time saved, and last but not least a thorough comparison of the quality produced by each system under every day working conditions for a certain length of time.

Many supporters of brush stripping claim that it is necessary to use the brush once or twice per week along with the vacuum. That is true, and I wish to add that the makers advise using it once a week. Some years ago when I worked with the original Cooks people in England, installing their stripper, they had some rules printed on the back of our time notes informing the fitters to advise the mill people to use the brush stripper once per week. So you see even the maker saw the necessity of using the brush, if only to remove the wax from the wire.

I am not going to condemn either of the systems, for as I stated in the earlier part of my letter, one may show better results than the other under different conditions. As for myself, I like to see the brush wire get into the card clothing and remove the strips; then again I like to see the vacuum and brush stripping system. But anyway, here is something to try with both the vacuum and the brush systems. Probably all the readers have seen the results when the sliver has followed the doffer around several times the millions of neps were made with the cotton getting chewed up. Which will clean the doffer and cylinder better, the vacuum or the brush? How many times will the brush have to be put on to make a good stripping and how many times will the vacuum have to be used? Which would the reader prefer, the brush or the vacuum, to do this job? If the brush is chosen, is it because he has a chance to burnish the wire at the same time that he strips? There are many more things probably where the merits of the two could be tried, but then again it might be that one of them would outshine the other sufficiently to impress a person that one or the other is the better system.

It is mighty hard for some of the old timers who have been using the brush since they went to work. They cannot see how the brush can ever be discarded, but as I stated, the vacuum system is here to stay and they cannot stop progress. It reminds me of an old lady who would never go for an automobile ride on account of the danger of being killed in an accident; she had made a vow to that effect, but one day the poor old lady died and she got an automobile ride, due to the progress of modern efficiency. I just mentioned this incident to show how things can turn out in spite of opposition, and not to knock the opinion of any of the readers. By expressing our opinions we can increase each other's knowledge on these different subjects. What I have said may be of interest to some of

ALL STEEL Schick FIREPROOF **Baling Presses (Hand or Power Type)**

for Every Baling Purpose

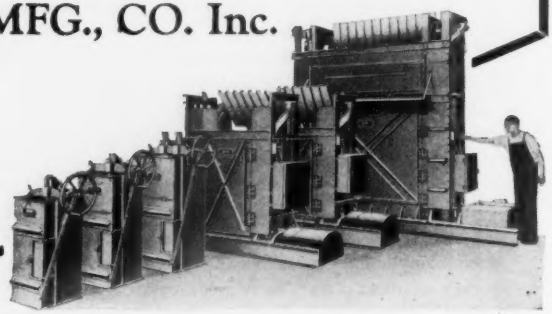
Particularly suitable for baling cotton, yarn, rags, paper and waste material of every kind. 8 sizes provide a Schick press to meet every baling requirement. Hand balers 125 to 375 lbs. capacity. Power balers 350 to 1500 lbs. capacity.

Schick Balers are all-steel, positive in operation, fire proof and indestructible. They are a paying investment wherever waste materials exist.

Write for Catalog and Prices

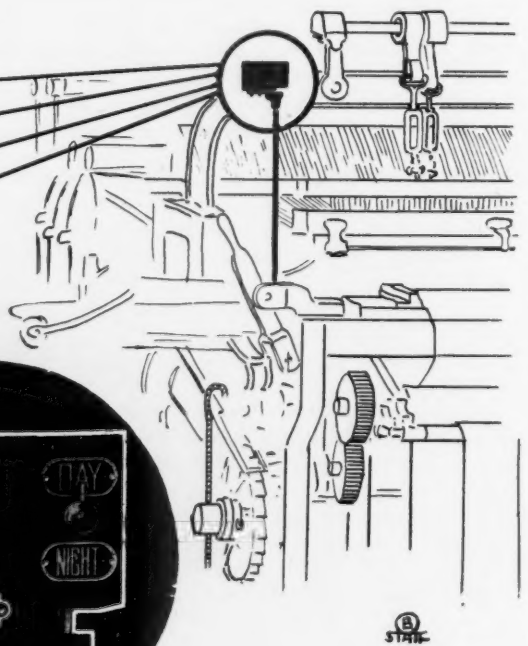
FOR BALING
—Cotton
—Yarn
—Rags
—Paper
—Scrap
or any waste material.

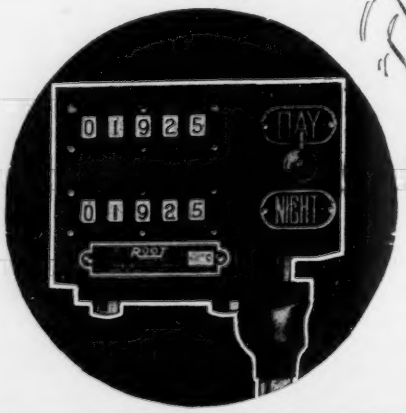
DAVENPORT MFG., CO. Inc.
DEPT. F.
Davenport, Iowa
"The Samson of Balers"



Why Should You Pay by the Pick?

1 IT STIMULATES THE WEAVER TO BEAT HIS PREVIOUS DAYS RUN
2 EACH OPERATOR KNOWS EACH DAY HIS EXACT OUTPUT
3 ELIMINATES GUESS WORK AND DISSATISFACTION
4 ALLOWS THE SUPT. TO ACCURATELY CHECK EACH LOOM





The system costs less to maintain, and there are many other convincing money saving reasons. May we show you what ROOT PICK COUNTERS are doing for others?

Just drop us a line and request our catalogue.

The ROOT Co.
9 Beck St., Bristol, Conn.
Southern Representative:
W. A. Kennedy
Johnston Bldg.; Charlotte, N. C.

ROOT COUNTERS

the readers and bring out other points for the benefit of all interested in the subject.

JOCK (MASS.)

Uneven Yarn

EDITOR COTTON:

Funny thing, this business of uneven roving and yarn, isn't it. We can almost find it and can almost manage to dig up excuses for it.

Some men blame the bobbin lead frame, some blame the drawing and others say it is the card. Also, we have a few who say it is the picker. Now any one of these machines not in proper order, or operating under the wrong settings can make a mess out of the whole works. I don't intend to attempt to try to point out every little thing that will help to make weak yarn. In fact, if I wanted to I don't think I should have time, as I don't look forward to living many years after the first hundred. But while I still have my health I want to mention just one thing:

Suppose the evener motion is not functioning properly on the picker. The picker tender allows three laps to run through for say a foot, before he replaces the lap that just run out. The evener doesn't take care of it and we have a place in the lap a foot long and about 25 per cent lighter than it should be. Not very much—only a foot.

Now, we follow that lap through until it is made into 50s yarn. The foot of light lap has now been drafted down to more than *fifty million feet of yarn.* It isn't 25 per cent light now of course, but it is light enough.

If Aesop had written the foregoing little fable he would end it as follows:

Moral—A speck of dust isn't much until it lands in your eye.

CONTRIBUTOR NO. 251.

Loose and Tight Gauge Settings.

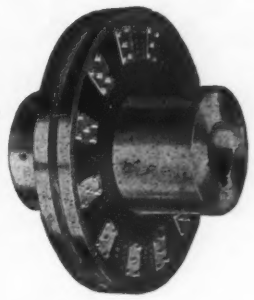
EDITOR COTTON:

In the May issue of COTTON I notice an article by "Contributor No. 14" under the heading "Progressive Card Flats," in which he refers to an article appearing in the January issue by "Bab (N. C.)" concerning the setting of card flats, and I should like the privilege of saying a few words as to loose and tight gauges, which he mentions.

The flat gauges we use are based on 1/1000, and when we are setting flats, or any other part of the card to a 7/1000 we should get the flats, or whatever we are setting to where the wire can be felt very lightly on each side of the gauge as it is slid across the wire. Then we are setting to 7/1000 or as near as possible, but if we pull the flats down tight on the gauge or what they call a tight 7, we are not setting to a tight 7, but the setting is really a 5/1000 or 4/1000. Or if it is set loose it would be a 7/1000 or 8/1000.

If we should go into a shoe store and call for a loose five or a tight six what would the salesman think of us. According to my way of thinking there is no such thing as a tight and loose gauge. However, because we do not have the desired gauge we want to use we use another gauge and call it a tight or loose gauge. I do the same thing very often, as my gauge only has four leaves, 5/1000, 7/1000, 10/1000 and 12/1000. If my No. 7 gauge gets broken I have to substitute my No. 5 gauge or No. 10

For Direct Connecting Motors to Spinning and Twisting Frames



Over 100,000 in Use

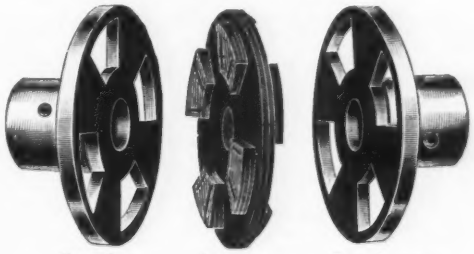
Grundy Couplings are designed to render the utmost in service on all direct drives. They are made according to specifications determined by an analysis of the textile industry. They are made in a variety of sizes, working on any direct drive—with fewer repairs and less attention than any other coupling on the market. Thousands of these couplings are at present in use in various Textile Mills throughout the country. Illustrated folder showing the "Grundy" actually driving Spinning and Twisting Frames will be forwarded upon request.

The following salient features should soon prove to you why

Grundy Patent Flexible Insulated Coupling

should harness your direct drives:

1. Takes care of uneven strains.
2. Self-adjustment insures perfect alignment of shafts.
3. Can be used whether insulation is required or not.
4. Perfectly balanced, and adapted for revolving at high speeds.
5. Runs in either direction; is close connected; easy of access; practically no repairs.
6. There are no projections to cause damage.
7. Maintains a positive and silent drive; free from objectionable hammer action features.



Cast Iron Leather Cast Iron

Write for Booklet "F"

Manufactured exclusively by

CHARLES Bond COMPANY

Leather Curriers, Importers and Belting Manufacturers

617 Arch Street, Philadelphia, Pa.

ALL STEEL
ECONOMY
FIRE PROOF
BALING PRESSES
ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.
ECONOMY BALER CO., DEPT. C, ANN ARBOR, MICH., U.S.A.

WHEN IT COMES TO SIZING WARPS
made of RAYON and CELANESE YARNS

The Johnson Warp-sizer is the machine YOU NEED.

It is the machine that the largest manufacturers of RAYON and CELANESE YARN FABRICS—and the leading manufacturers of the Yarns, USE AND RECOMMEND.

They have found that it will turn out more and better work,—more economically than any other machine.

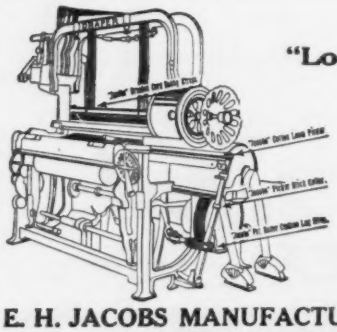
LET US GIVE YOU A DEMONSTRATION,—IT WILL CONVINCE YOU.

Warp-sizing Machine No. 81. Pat'd June 2 1925.

Send for descriptive circular.

CHARLES B. JOHNSON
10 Ramapo Avenue
PATERSON, NEW JERSEY

Southern Representative
GIBBONS G. SLAUGHTER, Charlotte, N. C.



Our "Loom Supplies"

are used by Draper Corporation, Crompton & Knowles, Mason Machine Works, Stafford Company, Hopedale Mfg. Co. and carried in stock by all the largest Supply Houses.

E. H. JACOBS MANUFACTURING COMPANY
DANIELSON, CONNECTICUT
Southern Factory Branch, Charlotte, N. C.

Liquid EBG Chlorine

The service is equal to the product.
In 100 and 150 pound Cylinders,
Ton Drums, and Tank Cars.

Electro Bleaching Gas Co.
PIONEER MANUFACTURERS of LIQUID CHLORINE
Plant: NIAGARA FALLS, N.Y.
Main office 9 East 41st Street New York

gauge and either set the No. 10 gauge tight or the No. 5 gauge loose—mostly guess work. But a setting that feels loose on a No. 5 gauge and tight on a No. 10 gauge should be somewhere near a No. 7 gauge.

In his article, "Contributor No. 14" discusses the card draft also, and it seems to me he thinks the flats do a great deal of the drafting. I can't see where they play any part in the drafting process. It is true they lighten the stock as it comes through by taking out as much short staple and trash as they are allowed to carry by the setting of the front plate. If the flats were taken off and the card allowed to run with the stock in it, the sliver should be the standard weight plus the percent of stripping being taken out. I don't think the flats are supposed to do any drafting, but their part is to straighten the fibers on the surface of the cylinder and to do as much cleaning as possible.

From a thinking standpoint it seems very true the flats should be set a little farther off next to the licker-in, but from practical experience I have not been able to tell any difference, except it seems to increase the breaking strength a small per cent.

I should be glad to hear from some one who can give still more light on this subject. B. E. C. K. (Ga.)

Twist in Roving.

EDITOR COTTON:

With reference to the question by "Contributor No. 3025", in the June issue of COTTON, regarding roving twist and the weather and the value of twist in roving, I think twist in roving should be determined when there is a high relative humidity in the carding department—say around 70 to 75 per cent. I have found that roving made during a period of wet weather, when the relative humidity was high, would weigh the correct amount of grains, but the stock is not there, and of course we cannot twist water, and unless there is extra twist or slightly more than is needed in dry weather—say when the relative humidity is around 45 to 50 per cent—the roving will stretch and cause uneven yarn and bad running spinnnig.

Then another trouble we have that sometimes is blamed on the weather is that we let a shorter and weaker cotton get by, which requires more twist, or there will be bad running work.

I am not an advocate of excessive twist in roving, but I think—especially on low grade cotton—that we should have one more tooth in the twist gear than is actually needed. This will take care of the weather, the lower grade and weaker cotton, and sometimes excessive waste that gets in—also bad skewers and other things that cause the roving to stretch. L. (N.C.)

EDITOR COTTON:

With reference to the question of "Contributor No. 3025" in June COTTON, regarding twist and weather affecting the running of low-grade cotton in spinning, I should think that it is the humidity, just as his carder says; when his work runs well, the weather is favorable because the air is full of humidity, and when it runs bad the weather is unfavorable, and he has insufficient humidity. It is a well-known fact that humidity is necessary to obtain good breaking strength and no work runs well without breaking good.

As for twist, it is easy to determine whether he has

Before Summer Turns Into Brown Autumn

Now, while the days are sunny and the evenings cool and pleasant, is the best time to select shade trees, flowering shrubs and fruits for home grounds.

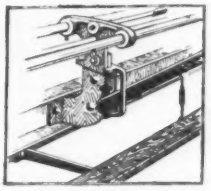
Brown Autumn Is Planting Time

Before cold weather comes the trees can be in the ground, ready to "jump" in early spring. But you should make summer the planning time.

Write us today for suggestions. We will be glad to advise you, or will have our representative call if you wish.

THE HOWARD-HICKORY CO.,
Nurserymen—Landscape Gardeners
10th Avenue **Hickory, N. C.**

Many friends in the South



Treadle Catches and balanced Treadles on both warping and beaming ends are found exclusively on EASTWOOD Warpers

The manufacturer of all or part Silk, Rayon or Cotton Fabrics will find much to his liking in

EASTWOOD
Winders—Warpers
Quilling and Copping Machinery
BENJAMIN EASTWOOD CO.
PATERSON, N. J.
Represented in the South by
FRED H. WHITE, CHARLOTTE, N. C.

Observation carries conviction.

COTTON MANUFACTURERS

selling direct or through agents can use the services of this Bank to enable them to distribute their merchandise for cash—and thereby eliminate the credit risk.

TEXTILE BANKING COMPANY

FACTORS

Fifty Union Square
New York

Thor

UNIVERSAL ELECTRIC DRILL

Speed, power and cleanly cut holes are assured by the use of Thor Electric Drills. They are equipped with our specially built electric motor. A Thor can do the job in one-fifth the time it takes an old fashioned hand drill.

Equipped with ground wire for safety — Shocks are Impossible

INDEPENDENT PNEUMATIC TOOL CO.
General Office 600 W. Jackson Blvd. Chicago, Ill.
Eastern Office 1463 Broadway New York, N. Y.
Southern Office 1721 The Age-Herald Bldg., Birmingham, Ala.
Branches
Boston, Mass. Cleveland, Ohio. Detroit, Mich. Montreal, Que. Philadelphia, Pa. Pittsburgh, Pa. St. Louis, Mo. San Francisco, Cal. Buffalo, N. Y. Toronto, Ont.

We also make the world famous Thor Pneumatic Tools. Write for details.

Worth Your Consideration—

More Than Twelve Years Specializing in Simple and Accurate Cost Systems for Over One Hundred Textile Mills.

In none of these mills have we ever found it necessary to modify the book-keeping system for the sake of obtaining accurate costs. It has seldom been necessary to introduce new forms or reports other than the cost card itself. In many cases where new reports have been introduced, they have served to reduce clerical labor rather than to increase it.

Write for our booklet, "Practical Simplicity in Textile Cost Methods"

RALPH E. LOPER & CO.

Specialists in Textile Cost Service
INDUSTRIAL ENGINEERS
FALL RIVER, MASS. GREENVILLE, S. C.

Bradley Stencil Machine

The Bradley Stencil Machine makes Stencils in half a minute at reduced cost of 1-10c each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.

Oil Paper, Stencil Paper and Inks. Bradley Ball Stencil Pot uses Liquid Ink for marking and stenciling. Price 60c or $6.00 per doz. Manufacturers of Oil Stencil Papers.

Write for Prices and Samples

A. J. BRADLEY MFG. CO.

99 Beekman Street NEW YORK

50% Better than ever from YOUR Standpoint

SEVERAL NEW FEATURES

have been added to the "1913" cloth Cutting, Folding and Winding Machine which add at least 50 per cent to its value to YOU.

It will cut your cloth, fold the edges—roll it up and give you an exact measurement of every piece of cloth going through the machine.

It saves time, labor, machines and cloth.

YOU ONLY NEED ONE MACHINE where before it required two and you get an extra strip from each bolt of cloth.

It cuts the corners of expenses in every way and leads to more and greater profits.

THE ENORMOUS SAVING WILL INTEREST YOU.

Mail a card for complete information and prices.

When in need of special machinery, write us.

J. A. FIRSCHING, 814 Broad St., Utica, N. Y., U. S. A., Dept. "C."

RAYON SIZING FOR WARP

SKEIN OR SLASHER

ALL sizings bind the fibres, but if you wish to obtain in your Warp Ends, the two most essential characteristics, *Elasticity and Flexibility, you must use*

WASOL M-21

DISCHARGES IN PLAIN WATER

Neutrasol Products Company
41 Park Row New York

enough, if he will lay a bobbin on the floor with the strand over the top of the bobbin and back off a few feet. If the strand turns the bobbin he has sufficient twist, and should it break he has insufficient twist.

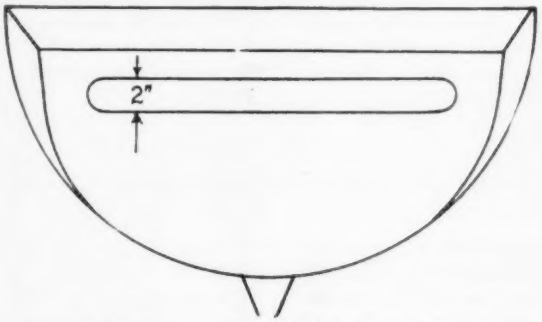
He says his work runs well when the weather is favorable. The thing is to make this work run well when the weather is unfavorable. If I were his overseer of carding, when the weather began to get dry, hot and windy, I would begin to heavy up a little, say one tooth in the crown gear at a time. He says he is spinning 11.50s. In unfavorable weather, then let his roving spin 10.50s to 11.00s, and when the weather is favorable, let his roving spin 11.50s to 12.00s.

T. R. (Miss.)

A Comber Kink.

EDITOR COTTON:

The sliver tin of Platts' Heilmann comber is made with a gauze false bottom, this being to allow short fibers and dust, etc., which fall from the combed web, during its passage through the sliver tin, to be collected in the space between the sheet of gauze and the bottom of the tin. No doubt many readers of COTTON who work this type of machine will have noticed quite a lot of this undesirable dirt,



etc., which collects in this space in the course of a few days working. The usual way to remove this is to break the sliver web in the tin.

To overcome this, and also to insure that the false bottom never becomes too full of dirt, etc., I cut away from the bottom of the tin a thin strip, about 2 inches wide, running, as shown in the rough sketch, the whole length of the tin. At first I just tried one tin and the results were so satisfactory that I had all my comber sliver tins cut in this manner. I trust that this kink will be of value to users of Platts comber.

F. W. (CHINA.)

Card Settings and Gauges.

EDITOR COTTON:

In the July number of COTTON, I note that "I. T. (N. C.)" gives his ideas on card settings and gauges. In my opinion, he has the right idea in regard to setting card flats. I cannot see any reason for not setting all of the flats to the same gauge.

But on the stand "I. T." has taken in regard to tight and loose gauges, I must differ with him. In my opinion we can have both tight and loose gauges, as I will try to explain.

"I. T." says "there ain't no such animal" as tight and loose gauges. I will say there are two, tight and loose,

Better Lubrication at Less Cost per month

Smart Operatives ask for

TRADE MARK REGISTERED IN NON-FLUID OIL UNITED STATES PATENT OFFICE

MODERN TEXTILE LUBRICANT

because they have found that it saves them unnecessary oilings—NON-FLUID OIL lasts **much** longer in bearings than liquid oil that wastes and drips out almost as fast as it is applied.

Another advantage of NON-FLUID OIL for the operative is that it avoids the troublesome oil stains caused by the dripping and spattering of liquid oil; this also saves the mill the loss caused by depreciation of goods.

And the Superintendent and the Master Mechanic know that NON-FLUID OIL is a good lubricant—because they soon see the decrease in wear and tear caused by unnecessary friction.

If you are not using NON-FLUID OIL (most mills are) just write for free testing sample and bulletin, "Lubricating of Textile Machinery"

NEW YORK & NEW JERSEY LUBRICANT CO.
MAIN OFFICE 202 MADISON AVE. NEW YORK, N.Y. WORKS NEWARK, N.J.
Warehouses
CHICAGO, ILL. ST. LOUIS, MO. ATLANTA, GA.
PHILADELPHIA, PA KANSAS CITY, MO. CHARLOTTE, N.C.
PROVIDENCE, R.I. NEW ORLEANS, LA. GREENVILLE, S.C.

GARLAND

THE GARLAND LOOM HARNESSES

have the right "feel" and appearance.

An important feature of our loom harnesses is their appearance and their "feel." Their smooth finish and their freedom from defects show that they will weave well, and their soft pliable "feel" shows that they are tough and elastic and will therefore wear well.

GARLAND MFG. CO.
SACO, MAINE

but they are governed by touch.

Now we might go to different mills over the country and find several men who set the doffer to a 7/1000 gauge, and we might find to our own sense of touch that is not a 7/1000 gauge. This being true, there is such a thing as making two settings with one and the same gauge.

In my opinion, settings should be made according to the grade of cotton being run and the class of goods being manufactured. There is a saying that a bad start denotes a good ending. In some instances that might work, but it will not work in this game. A good start, with careful attention from start to finish, insures a good ending. The card is the starting point of combing and disentangling the fibers and must have careful attention to perform its duties properly. A card should be ground regularly about every four to six weeks under normal conditions, grinding light for twelve to fifteen hours. Hard or heavy grinding tends to have the same effect as splitting the teeth would have, so in my opinion, light grinding gives better results.

R. R. (N. C.)

Roving Twist and Weather.

EDITOR COTTON:

I have been noticing, since the April issue of COTTON, the discussion on the value of twist in roving. One of the letters was entitled "Roving Twist and Weather." I would like to take part in this discussion briefly, as I was overseer of spinning before I was overseer of carding and knew nothing at all in regard to the value of twist in roving. There are many things which will cause bad running work in the spinning and which are more overlooked in the card room than the amount of twist in the roving. I think if a carder will get all of the other conditions in the card room corrected, there will be very little trouble with the twist and the weather conditions.

In the June issue "Contributor No. 3025" states that he is having trouble with 1.75-hank roving, made from ¾-inch low grade cotton; his difficulty comes in the spinning room where he is making 11.50s with a draft of 6.55. That is a very good draft, and I would not recommend any longer draft provided the carder does not have to draft the finished roving more than 4.50 or 5.00 at the most. It is much better to have the longer draft on the finishing process than in the preparatory processes. Preparatory drafting is far more important than twist in the finishing process of roving. Drafting and twisting alone cannot be a cure-all for bad roving. Roller setting is a very important factor, and if the settings are incorrect undue trouble will be caused in the spinning room.

"Contributor No. 3025" does not state what size frame he is producing his 1.75-hank roving on, but I would say it was about a 10x5 frame with a 1 3/16-inch front roll. If this is the case, he cannot set his rollers too close on that short staple cotton, as the rolls could rub and still be too far apart. If these fellows would state their cases more plainly, that is, give the draft, twist factor, lay and tension on certain size frames, it would be much easier for the readers to help them out than it is by having to guess at so much.

However, I will try to give a few points here that have helped me out wonderfully in practically the same situation. The size of the frame has a lot to do with the speed of the spindles in the card room. If as large a frame as a 10x5 is being used, I would recommend 800 r.p.m. for the spindles and not more than 4.50 draft, with a twist factor of 1.45 times the square root of the number. Now, if the 1.75-hank is to be made on 8x4 frames, I would suggest 1,000 r.p.m. for the spindles with a draft not longer than 5.50, and a twist factor of 1.45 times the square root of the number. With the layers of roving on the bobbin, I have found that 9.3 (factor) times the square root of the number will give a very good lay per inch and will assist more in building a firm bobbin of roving than most any one thing that can be done to the finisher roving. I always govern the tension of the roving by the "feel" for tightness or looseness of the ends on the frame, being sure that they are not tight enough to cause the roving to be stretched in the operation of winding onto the bobbin.

So far as the weather is concerned, we all know that spinning will run bad in hot dry weather if the proper amount of humidity is not there, and it doesn't help matters any for the carder to allow his ends to run slack in damp weather and tight in dry weather. The spinner will surely have his troubles when the card room apparently is running good.

We have humidifiers in our card room, and the best regulator made, we think, and the humidifier heads are turned on to run in dry and wet weather alike, making it much easier for the section man in changing the tension gears. A well-trained and watched section man will do more good than anything else in keeping all the ends runnings the same in all kinds of weather.

R. F. D. (GA.)

Fly Frames and Cone Belts.

EDITOR COTTON:

In his article, "Cone Belts," in the July issue, "R. E. C. (Ga.)" has done himself credit. You know, I do agree with a contributor once in a while. I am using the cone belt described in his article, and I doubt if any cone belt across the pond can equal the one I am using.

"R. E. C." has the right dope on a cone belt. I enjoy reading these practical articles, for there are few men that understand the functions of a cone belt from the beginning to the end of a set of roving. Many contributors to this department claim the bobbin-lead system to be the best; that on some frames, the bottom cone is a driven; again, others claim that the fixed gear on the driving shaft aids too, but on all up-to-date fly frames, you must have a special-made cone belt to drive the bobbins. I wonder when the manufacturers will wake up on this point.

Watch COTTON, and before many months, I will give the readers of COTTON a sketch of a beltless fly frame.

WASH (R. I.)

R. M. CHRISENHALL has resigned as overseer of carding at the Winnsboro Mills, Winnsboro, S. C., and S. A. Roan has been promoted to the position from the place of night overseer in the same department, in which position he is succeeded by C. L. Jolly.

CHARLES HAMMER has become overseer of weaving at the Arista Mills, Winston-Salem, N. C., succeeding L. L. Neal, resigned.

F. A. MARROW has become overseer of spinning at the Payne Mill of the Bibb Mfg. Company, Macon, Ga., succeeding L. H. Hambright.

Knitting Section

Facts!

Chiffons

are again selling steadily

New Model K

Insures the Demand for *Your* Product

$3\frac{1}{2}$ — 300 Needle — 70 gauge; Heel reduced in size

High spliced heel and double sole reduced in proportion, making a narrow stocking over the instep and foot. The machine embodies all the regular features of the Model K, including fashion seam and fashion marks.

Established 1865

SCOTT & WILLIAMS

Incorporated

366 Broadway

NEW ENGLAND SPUN COTTON YARNS

We Spin Cotton Yarns in All Numbers from 1's to 100's.

We Twist these yarns in Any Number of Plys desired from 2 ply up.

We Furnish these single or twisted yarns to suit your own particular purpose. Any Twist you say.

We furnish them on Cones, Tubes, Spools, Bobbins, Warps, Beams, Skeins—Gassed or Ungassed.

We can furnish the above from any Staple Cotton you desire.

COMBED and CARDED AMERICAN or EGYPTIAN

and behind all this an Organization that has been Spinning Yarns for Years and Years.

We recommend

QUISSETT QUALITY YARNS

SPUN FROM

EARLY BLOOM COTTON

QUISSETT MILL

NEW BEDFORD, MASSACHUSETTS

80,000 SPINDLES

QUISSETT MEANS QUALITY

The Autostriper Machine

BY WILLIAM DAVIS, M. A.

The principle of making designs on the autostriper system referred to in a former article marks such an important contribution to the industry that it will be of interest to show the attachment in greater detail. First of all let the procedure adopted on the present system of Jacquard attachment to the flat knitting machine be referred to, where the usual attachment is made to the needle bed in front of the machine so that only selected needles will knit. To produce a full course of reversible two-color design, it takes four traverses of the comber. Suppose there is required a reversible design showing a solid stripe of white, 9 needles wide, alternating with a stripe of black

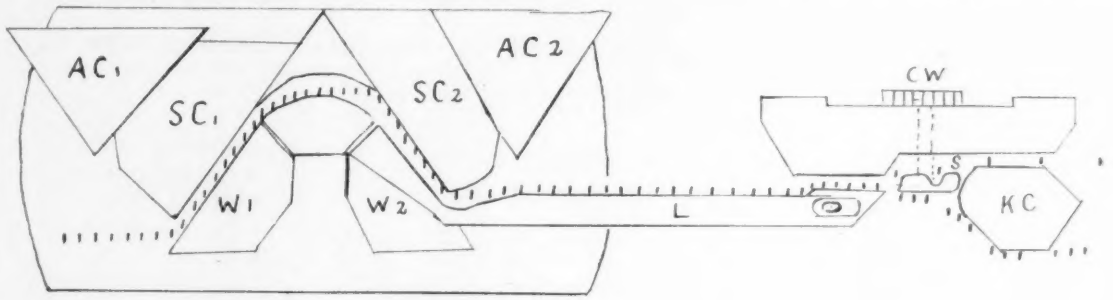


Fig. 1.

9 needles wide. The carriage would be on the left and moving towards the right, needles 1-9, 19 to 27 and so on would be selected and given the first white thread. This white thread would be given to all the needles in the back bed at the same time. On the return journey one would knit a course into the back needles only to get into position to lay the black thread. When the carriage is again on the left the Jacquard makes the reverse selection and the needles 10 to 18, 28 to 36, etc., are thrown up into position by the Jacquard. The return journey is then made by inserting the black thread a second time into the back needles. To lay the full two color course we require four courses of knitting to be inserted and as the needles on the back are supplied with a double lot of yarn, it follows that the resulting fabric is very stiff. This stiffness is required for some very special purposes such as the tops of stockings where fancy diamond effects are sometimes required for sports' wear, but for the ordinary purpose this fabric scheme is too rigid. This gives rise to the general practice of having the back bed of the machine provided with a one and one card taking the even needles only at one throw and the odd needles at the alternate throw. This goes on throughout the fabric and has the effect of reducing the "boardiness" of the fabric and gives the texture greater pliability and consequent wearing comfort.

In contrast with this system of making pure Jacquard patterns, Fig. 1, given herewith shows the attachment made to the ordinary cams in the flat knitting machine to produce the wide range of fancy patterns with increased production and greater simplicity of action. Fig. 1 gives a view of the cams used in this attachment by Dubied and the description of the various members is as follows: SC_1 and SC_2 are the two stitch cams which are of the ordinary form. AC_1 and AC_2 are the auxiliary cams which for ordinary fabric are kept in the high position shown but when it is required to make stiff portions of fabric, such as the collar of a coat for example, these two cams are brought down and serve to augment the action of drawing through the stitches. The first stitch cam pulls the thread down a given amount and the auxiliary cams a moment later give the thread an extra precautionary pull which exerts a better control when the tensions are tight. The center cam is made up of three segments in the usual shape, W_1 and W_2 represent the wings, and they are bevelled inside so that when in action the needles are forced upwards over them but if the needles come under them in the opposite direction, they pass over the cam in a straight line as they can press them into the cam box in so doing.

These parts are already well known as the system on an ordinary machine and it is to the part marked L with the selector S and its cog wheel CW to which special attention is directed. For the exact nature of the action of the selector in making the division among the needles for the pattern it is helpful to refer to S in the right hand section of Fig. 1, which shows several divisions in the selector

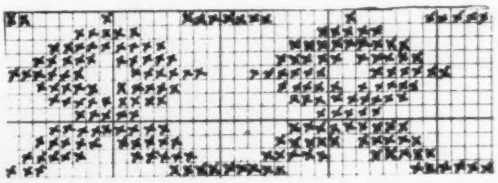


Fig. 2.

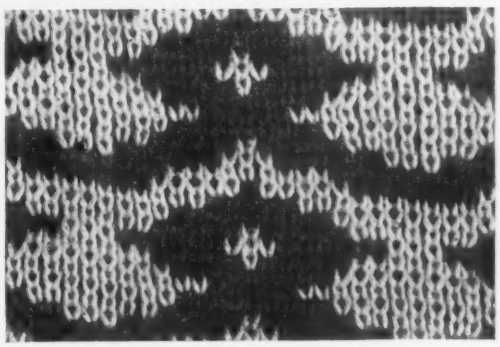


Fig. 3.

The "BANNER"

SPLIT-FOOT PRODUCT

SPLIT-FOOT HOSIERY, the new creation, brought about by the main disadvantage in present day hosiery, namely:

The unsightly inside fringe of splicing ends in the reinforced portion which tends to slip through and form whiskers on the outside.

SPLIT-FOOT hosiery made on "BANNER" Split-Foot machines is smoother on the inside, neater in appearance and has added strength at the reinforced high splice and double sole, having no hard seams.

WHY MAKE AN INFERIOR PRODUCT?

WE INVITE INQUIRIES

HEMPHILL COMPANY

Main Office and Factory

PAWTUCKET, RHODE ISLAND

New York Sales and Show Rooms
Knit Goods Bldg., 93 Worth St., N. Y.

Southern Office,
James Bldg., Chattanooga, Tenn.

Philadelphia Sales and Show Rooms
Colonial Trust Bldg., 13th and Market Sts.

blocking the needles as they come along their normal path. The needle butts or heels strike the selector along the center portion and at this point they are forced upward a little way if they strike the segment which is bevelled in an upwards direction. If they strike segments bevelled in the

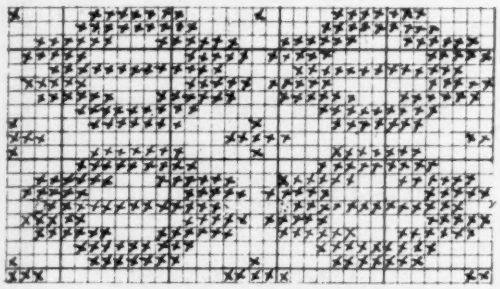


Fig. 4.

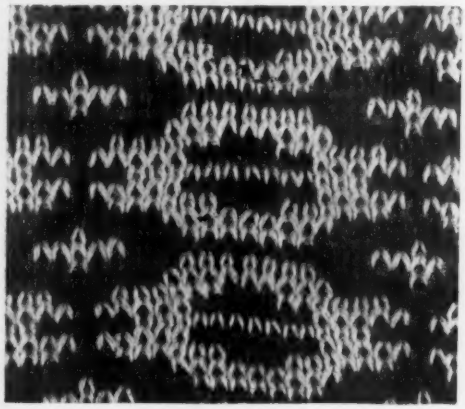


Fig. 5.

downward direction, they are pushed down slightly. In the sketch the selector is cut 3 down, 1 up and every fourth needle is raised, with the others depressed.

In is important that the true nature of the action of the selector should be understood. It is neither a lifting action nor a definitely depressing one. The movement is very slight in either direction and other auxiliaries have to cooperate to render the division wide enough for patterning

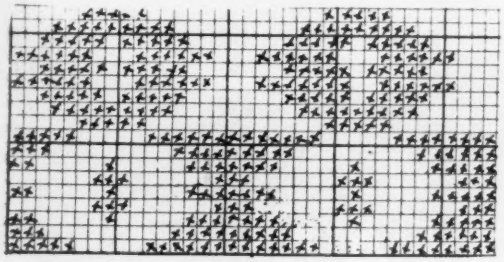


Fig. 6.

purposes. At this stage the knitting cam KC comes into the picture for located where it is, it is clear that the needles which have received an upward throw pass over its top and take the higher position. More definitely it will be seen that those needles which have been relegated to the lower position are made to pass along the underside of the knitting cam KC and their stitches will be drawn through in the ordinary manner.

Having described the action, let us explain in detail how one double course of loops are made. In the first place it is a rule that the selector can only be changed when the carriage of the knitting machine is on the left hand side and the colors can only be changed when the carriage is on the right hand side of the machine. The worker has therefore to turn his disc with the carriage on the left and slip in the different color with the carriage on the right.

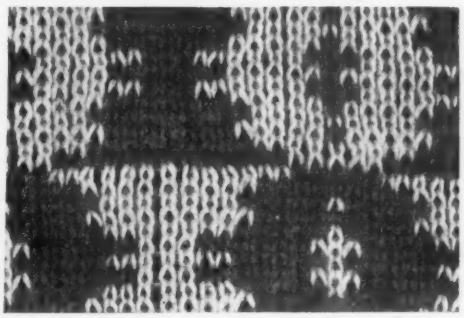


Fig. 7.

Let us take the kind of pattern which is especially popular, the two-color contrast where a definite figure is required. For this the black or dark color reversed in their action and the white thread is brought across the machine from right to left and back again. It is therefore a two and two feed of yarn in the machine.

Let us now suppose that the carriage is moving from left to right, the selector passes over the butts of the needles and makes its selection of some to be up and others to be down.

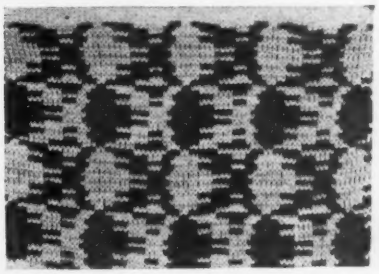


Fig. 8.

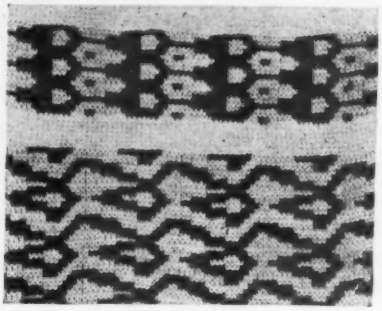
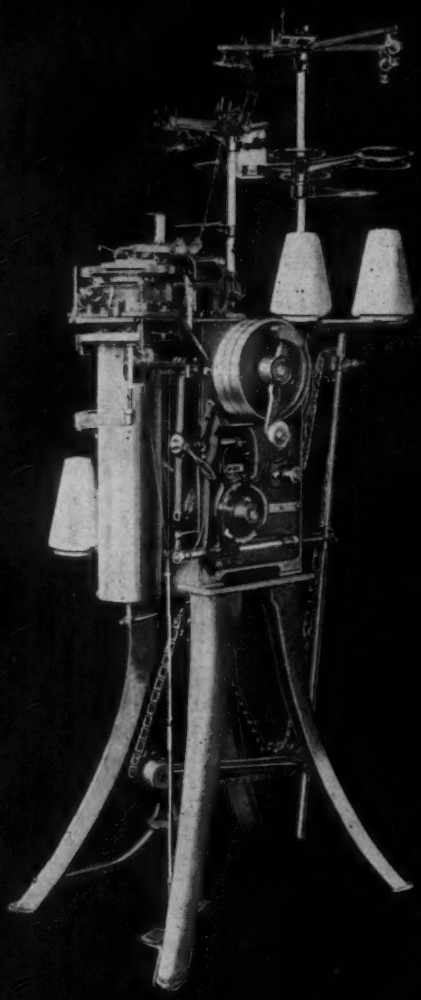


Fig. 9.

Fig. 10.

At the same time the yarn is fed into these needles, say with white yarn. On the return journey the yarn is changed and the black thread comes into action, and those needles which were thrown down at the previous courses pass over the wing cams W_2 and W_1 and do not knit. The needles which were raised in the previous course are forced up the edge of the cam L over the top and are drawn down the inside of stitch cam SC_1. During this selection, the needles



It's better to buy
Wildman Machinery
first, than to wish
you had later.

WILDMAN
THE WORLD'S STANDARD

WILDMAN MANUFACTURING CO.
Norristown, Pa.

We have issued a new edition of the complete and informative book, "The Science of Knitting." Price, $2.00.

WILDMAN
SPRING NEEDLE KNITTER

in the back bed knit all the time and take their share of both colors.

A few more examples may be given showing some variations on the four selectors arranged on the autostriper drum where the following arrangements are employed; they all have a repeat of 18 in the width but in the direction of the courses the number can be increased according to the pattern desired. The four selectors are as follows: 6 and 3, 9 and 9, 13 and 5, and 5—1—5—7. A scrutiny of Fig. 2 will show a strongly contrasting design where the courses traced crosswise are all built up from a permutation of those four selectors. The design is shown worked out in Fig. 3 where the dark color corresponds to the black crosses in the pattern. Another permutation of this quartet of selectors is given in Fig. 4 where the effect is more broken up and not quite so definite in outline as shown in Fig. 5. Another example is given in Fig. 6 with its related fabric in Fig. 7.

Figures 8, 9 and 10 are illustrations of what can be done in the range of patterns removed from the ordinary geometrical forms and for these the following arrangements of selectors have been used: (1) 2 up, 3 down, 7 up, 6 down. (2) 7 up, 5 down, 3 up, 3 down. (3) 9 up, 9 down. (4) 4 up, 14 down.

By following the succeeding courses in this bizarre design it will be noticed that they consist of one or other of those four arrangements and the pattern is the result of a skilful use of those basic elements in pattern making. Fig. 9 gives a view of a pattern more definite in form and Fig. 10 also stands out bold on the white ground. Obviously there is no limit to the way in which those selectors can be drawn out on a width of 18 inches and there is great scope for originality of experiment to secure new effects.

Schemes That Mulct Business Men.

BY JESSE H. NEAL.*

"Advertising, oh advertising, the sins that are committed in thy name," a paraphrase, of course, but just as true as the original quotation. Neither is the use of the word "sin" inappropriate because money spent for advertising which is not advertising is a sheer waste, and any deliberate waste of wealth is generally regarded as sinful.

No one wants to waste money for advertising or anything else, but the difficulty is to detect the shams, to see through the clever disguises adopted by those who trade upon the good name of advertising. Incidentally, advertising claims no special distinction in this respect. Every great truth, every great discovery, has its camp followers, its hangers-on. Every successful product has its imitators. Imitation appears to be one of the penalties as well as one of the tributes of success. Think of the medical frauds that are perpetrated in the name of electricity, of the innumerable preparations that are alleged to contain "vitamines." Unfortunately, too, many of the schemes as to the character of which there can be no question, are presented in such a way as to make rejection difficult.

No man in business seems to be immune from approach by one or more of the schemes that are self-christened "advertising." The smallest retailer as well as the largest manufacturer is confronted with the problem of discriminating between the genuine and the spurious. Here are just a few of the schemes that annually take from American business millions of dollars, which are wrongly charged to "advertising."

Charity solicitations—where they ask for a straight contribution which is charged to advertising. Also programs, annuals or other publications where space is sold for the benefit presumably of some charity. The Chicago Association of Commerce has adopted an excellent slogan applicable to such cases—"Do not advertise to help a worthy cause—*donate* to help a worthy cause—advertise to help your business."

Fake directories.—There are many useful trade directories that serve a good purpose, but there are also a few out and out swindles. One such outfit in New York was recently broken up and the principals sent to Sing Sing.

Benefit performances—for which the business man is asked to buy tickets and to take space in the program. A certain amount of polite coercion is exercised in nearly all of these cases, and when the victim succumbs the bookkeeper gets another item to be charged to "advertising."

Church bazaars—that operate with donated merchandise from manufacturers or retailers. The alleged advertising value of such donations is very slight. Better advertising and more of it could be bought in legitimate ways with the money put into donations.

Souvenir programs or society annuals—nearly always sold through threats of a business boycott. The "advertising" value of these mediums may set down as zero, but the cost goes on the ledger under advertising.

Picnic and dance programs—gotten out by organizations that are in a position to use blackjack methods to compel a favorable response to their demands. It is all called "advertising."

Propaganda—where space is sold for the alleged purpose of promoting a "movement" designed to make us all good Americans or to defeat the menace of bolshevism or something else. Perhaps it's all right, but its *not* advertising.

Programs and books for fraudulent organizations—sometimes the organization exists only in the mind of the solicitor.

These are but a few of the many schemes that make unsightly nicks in advertising appropriations, and that unfortunately lead to a wrong conception of legitimate advertising which unquestionably, is one of the greatest economic forces in present-day business.

In another article we shall endeavor to point out ways of recognizing the unworthy advertising schemes, and the methods of resisting them which have proven efficacious.

*Executive Secretary The Associated Business Papers, Inc.

Rodney Hunt Machine Company, 47 Mill Street, Orange, Mass., announce that their patented White Seal rolls, which have been on the market for several years in large diameters for cloth washers, etc., are now available in sizes as small as 8-inch diameters. The chief feature of this roll, it is explained, is the end protection, which is given by a water tight seal of stainless metal applied over the metal parts of the gudgeon, it being pointed out that the application of this seal prevents stain and discoloration of the goods from drippings of rust, etc., from the ends of the roll. Also, since no moisture or liquor can reach the end wood of the roll to soften and decay and thus loosen the shaft, the life is prolonged, it is stated.

TRUE RIBBED!

IN the quality of tops it produces, the Universal Hosiery Ribber has lifted hosiery standards to a new and higher level. Elasticity! Springy fit! Shape-clinging power! Uniformity and evenness of stitch! These elements are knit into the very fabric itself by the Universal. Investigate.

FIDELITY MACHINE COMPANY
3908-18 Frankford Ave., Philadelphia, Pa.

120 Broadway
NEW YORK CITY

James Building
CHATTANOOGA, TENN.

A hosiery top as knit on the Universal (after stretching)

The same top as above (note the stretch)

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Yarn Sizes for Woolen Hose

EDITOR COTTON:

In reply to your correspondent who wants some information regarding the knitting of an all-wool stocking on a circular knitting machine, I am pleased to submit the following general information.

The reason I say "general information" is because such a large number of factors have to be taken into consideration that a specific and restricted reply would perhaps not enable the inquirer to cope with his local conditions. For example, on a 240-needle circular knitting machine, it may be to the advantage of one concern to make one quality and weight of stocking, and another to make an entirely different weight and quality, so for this reason it will be necessary for each one to work out the particular type of stocking suited to the particular conditions.

The following information should be applicable to any type of circuar latch needle knitting machine. For a 240-needle, all-wool, inside welt, cuff, leg, heel, toe, high splice and double sole, the following range of yarns are suggested:

	Inside Welt, Cuff Leg Foot	High Splice and Double Sole	Heel and Toe
No. 1, Light Weight	1/60s	1/70s	1/50s plus 1/60s
No. 2, Medium Weight	2/70s	1/70s	2/60s plus 1/70s
No. 3, Heavy Weight	1/27s	1/70s	2/50s plus 1/70s

The following range is suggested for a 220-needle machine, for the same construction stocking as above:

	Inside Welt, Cuff Leg Foot	High Splice and Double Sole	Heel and Toe
No. 1, Light Weight	1/50s	1/70s	1/45s plus 1/70s
No. 2, Medium Weight	2/60s	1/70s	2/50s plus 1/70s
No. 3, Heavy Weight	1/24s	1/70s	2/45s plus 1/70s

From the sizes suggested, it will be noted that a wide range of yarn sizes is available for making from a light weight to a heavy weight piece of merchandise on the same gauge machine. Some may be able to run even finer or coarser counts of yarns, but it is my intention to give those counts of yarn to enable the selection suitable to anyone's particular requirements.

It is of course self-evident that sizes of yarn other than those listed may be chosen between the finest and the coarsest given, and in either singles or two-ply.

Wherever two-ply yarns are specified in the foregoing tables, for example 2/60s, the same weight yarn in the single (in this case 1/30s) can be used, and vice versa. It will also be noted that these are worsted sizes, and a 2/60s as specified is equivalent to a 40s/2 cotton, or approximately two-thirds of the worsted size gives the cotton size.

The particular type of stocking to which these specifications are applicable, are ladies' under silk, and these specifications are those of about the lightest gauze weight to about the heaviest for the two types of machines mentioned.

CONTRIBUTOR NO. 249.

Team Work and How to Get It

EDITOR COTTON:

"Contributor No. 44" asked a question in a recent number in regard to team work and the lack of it between the manager and the superintendent of a mill.

Having had many years experience as an executive and thereby coming in close contact with employees who have worked in other factories and cotton mills, I know that in a great many mills the manager will interfere with the duties of the superintendent, with the result that the employees of such mills do not cooperate with their superiors and therefore a good organization is not established. The following principles should be laid down:

That the operative should watch his machine; the overseer should watch the machines and the help in his charge; the superintendent should watch the overseers, machines and help; and the manager should watch the superintendent, overseers, machines and employees, but of course without interfering with any of the respective duties. If the overseer finds fault with any machine he should notify the operator to take care of the machine. If the superintendent notices something wrong in one department he should call it to the attention of the overseer. The overseer in turn should take care of any such matters in his department, and if the manager, in his inspection of the plant should find something wrong, he should bring it to the attention of the superintendent, who in turn should communicate with the overseer. The overseer is responsible for his department and it is up to him to have everything in it running satisfactorily. Therefore, he should have full control of his help. Leave of absence and any other such

matters should be left entirely to him. If he is not capable of handling his department satisfactorily, changes should be made sooner or later. If the superintendent cannot show his authority over the overseers, or if he is negligent in his duties, then he is not the right man for the position, and if the manager cannot show his authority over the superintendent, then the manager is not the right man for his job.

Defects in the machinery and any other grievances from an employee should be handled by the overseer, but if the defects in the machinery endanger the lives of other employees or spoil material or production and are not corrected within a reasonable time by the overseer, then a complaint should be entered with the management, but never should any order be given by the superintendent to employees unless the overseer in question is absent and quick action is necessary. In other words, the manager deals with the superintendent; the superintendent deals with the overseer and the overseer deals with the employees.

I established these rules and have followed them for the past twenty-five years, and I have found in most instances that I had loyal subordinates and have very seldom heard of any complaint direct from the employees.

New employees should be instructed directly by the overseer in reference to the work and the hazard of the machines. I have found in many mills that new employees were instructed by other employees, and when some poor work was turned out by the new employee the overseer found fault, whereas, he was really to blame himself, as a great many mistakes would be avoided if he himself gave the instructions. Where an employee is engaged in hazardous work, I have established a rule that an employee from another department, usually another overseer or second hand, should be present, as witness, when such instructions are given. A brief record of such instructions should be kept. It may be a little extra work for the overseers, but it will pay in the end and will often save an expensive law suit.

O. S. (Mo.)

Discharge Printing on Hosiery.

EDITOR COTTON:

The extraction process for effecting designs on hosiery became a subject of much attention recently when there was an attempt at reviving the polka dot style of ornamentation, and was extensively used so long as it appeared that demand for polka dots might continue for a considerable period. As the dots can be produced at materially less cost than by the extraction method, they came on the market in such quantities that dealers became alarmed at the prospect of excess supplies, particularly as it was a question whether the fad could be perpetuated, and the result is, there now is less of both extracting and printing, for it appears that polka dots failed to make much of an appeal.

While extracting requires printing, the two processes differ in that with printing the operation is complete when the stocking leaves the press, while the stocking printed for extracting must be submitted to some sort of bath or boiling, in a solution which causes a discharge of the colors where the plate or block used in the preliminary printing leaves the extracting chemical in the patterns or outlines of the plate or block.

This is a somewhat costly operation, seemingly not warranted, considering the materially lower cost of mere printing with fast colors. The stocking first must be drawn over a rigid board or form for enabling the operator to insert a shaped cardboard or some thin shaped substance for holding the stocking flat during the printing, the latter part of the operation requiring extreme care. Very great care must be exercised also in the preparation and application of the printing solution and its discharge, lest the outlines of the patterns be not uniform in the completed work. Except for silk hose, it would appear that extracting, because of the cost, is not practical. It is superior to printing, but too costly for cheap hose. One objection is the fact that designs for printing are easily copied.

Perhaps some of the readers of Knitting Kinks will go into greater detail on the technique of extracting or discharge printing on hosiery.

R. L. (PA.)

A Production Control Chart.

EDITOR COTTON:

You never can tell how some little thing may prove out to be helpful in the knitting mill. So many things depend on human nature, and the manager who can partially solve the ways of appealing to it and using it naturally is successful in the degree of his ability to do this.

We are using here at our mill a little "kink" which I thought might appeal to others who read COTTON and whose conditions are such that it would be applicable.

The average southern knitting mill has, in my opinion, the best all-around workers of any, but they are not versed in analysis or efficiency in the terms usually used. I mean they understand fundamentals, but oftentimes are mystified by figures presented in terms of percentages run out into decimals, and things like that. It is plainer, with all people in fact, to presents things graphically if possible.

We have worked up what we call a "Production Control Chart," or record, which is used to record the production in dozens in any department in the mill. I am showing the chart in the accompanying illustration. You will note that we make half-hose, ladies' hose and misses' and boys' hose, and use a different key for each one, and as the production ranges are different in the case of each kind, we use the one chart and put the line opposite the different figures.

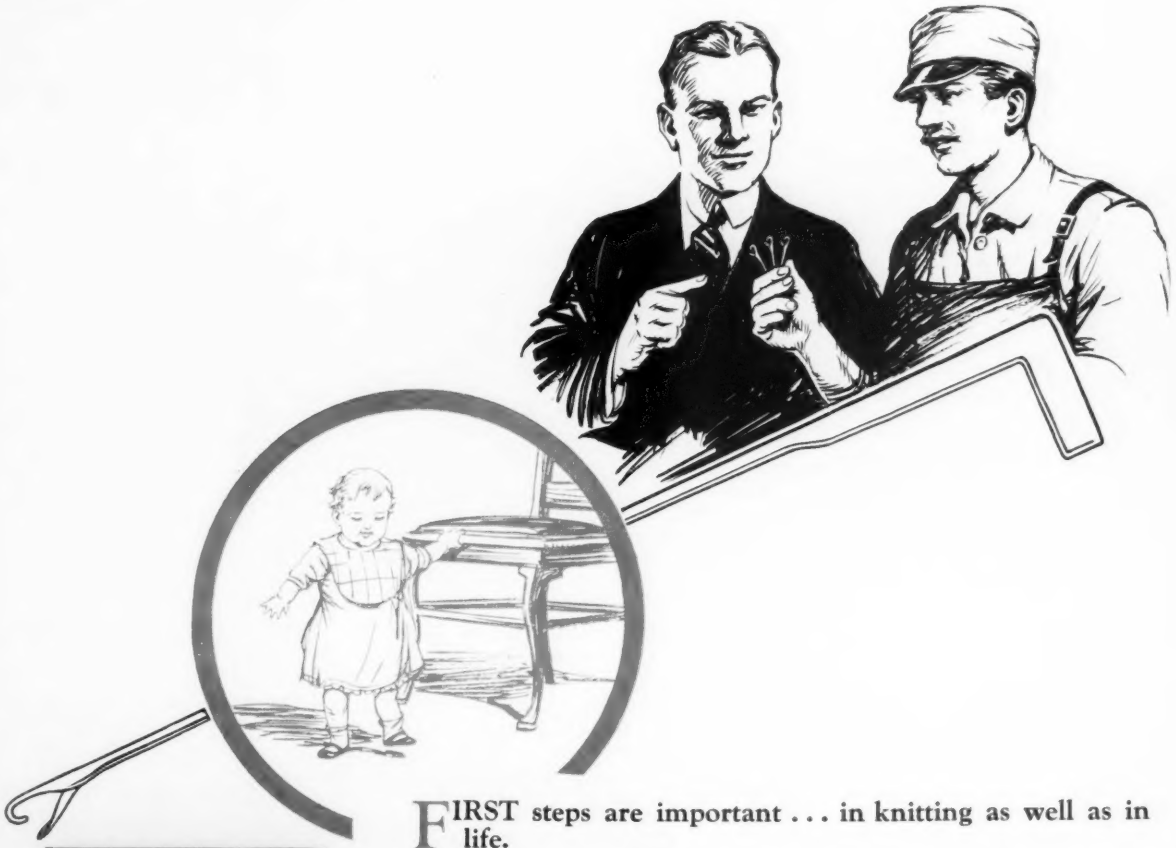
The figures across the sheet horizontally represent the days of the month, and the vertical column represents dozens of hose.

We set a theoretical standard of production on each kind of hose; say, on half-hose, we will say 1400 dozen a day is what we would like for the department to turn out each day. The foreman each day extends the line, showing the variation in the amount produced and how much it falls below or falls short of the estimated or desired standard. For ladies' goods we will say the production standard is 700 dozen, and for misses' and boys' hose, 500 dozen.

You would be surprised to see the effect produced by having this simple graphic chart posted and kept up-to-date so that the operatives can see just how their department is going. And of course the chart can be used for practically any department.

And here's a funny thing! At first it was difficult to get the folks to see the idea of putting the chart system in, but after a while, some of the boys in the boarding room

Success in knitting Commences with good needles



FIRST steps are important . . . in knitting as well as in life.

By filling your machines with Torrington Needles you have taken one of the proper steps to insure quality knitting production . . . that excellence of fabric which appeals to every buyer along the road to final consumer preference.

How do Torrington Needles create these advantages for your knitting? By never departing from the most rigid conception of uniformity . . . by the possession of that smoothness so essential to flawless goods . . . through the fine temper which imparts the sturdiness that eliminates breakage.

The TORRINGTON COMPANY

Torrington, Conn, U.S.A.

THE TORRINGTON COMPANY
CHERRY AND JUNIPER STS.
PHILADELPHIA

BRANCHES:
C. B. BARKER & CO., LTD.
140-144 W. 22ND STREET
NEW YORK

LOS FABRICANTES UNIDOS
964 CALLE BELGRANO
BUENOS AIRES

FACTORIES AT:
TORRINGTON, CONN.
MANCHESTER, N. H.
UPPER BEDFORD, CANADA
COVENTRY, ENGLAND
AACHEN, GERMANY

Hook the FELDLOCK Reg. U.S. Pat. Off. MACHINE *to your production*

for a big increase in volume— and profits

MAKES a two needle lapped fell seam.

Sews off the arm.

No loss of time in handling garments.

Easily operated, quickly adjusted.

Permits of use of lighter sewing supplies.

Makes a strong, attractive seam.

Represents the skilled craftsmanship of Willcox & Gibbs.

Over 100 factories in the United States use the Feldlock Machine for seaming these classes of garments...

Shirts, pajamas, blouses, children's clothing, petticoats, nightgowns, sleepers, house dresses, work shirts, nainsook woven underwear. Unexcelled for sheet seaming, and in bleaching and dye houses.

You should examine this new idea in felling machines. Ask our nearest Branch Office to demonstrate it.

WILLCOX & GIBBS SEWING MACHINE CO.

Home Office: 658 Broadway, New York, N. Y.

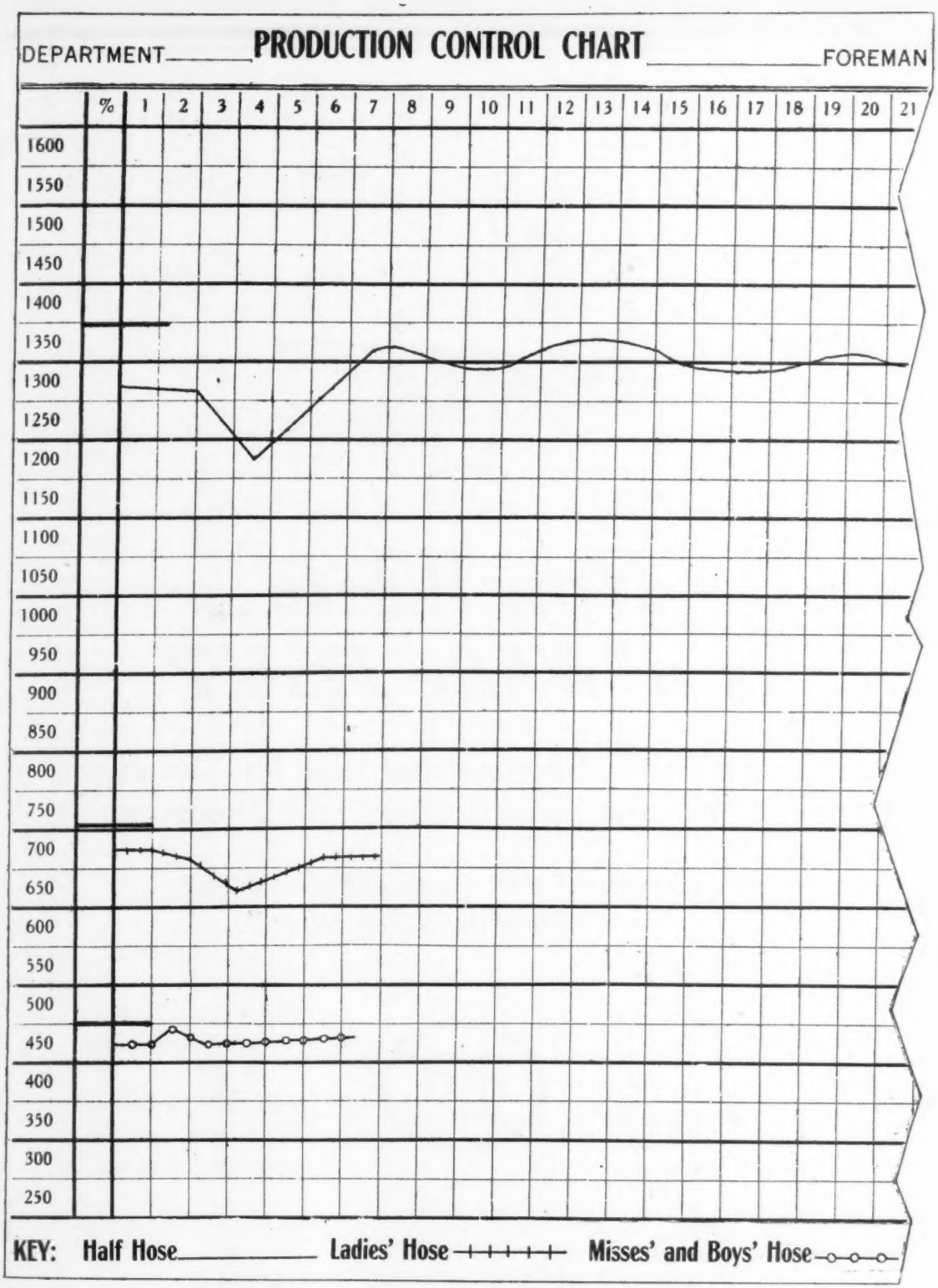
Baltimore, Md. 321 No. Howard St.
Boston, Mass. 111 Summer St.
Chicago, Ill. 206 W. Monroe St.
Cincinnati, Ohio 206 West 7th St.
Cleveland, Ohio 340 The Arcade
Los Angeles, Cal. 938 Maple Ave.
Minneapolis, Minn. 118 South 8th St.
Newark, N. J. 524 Broad St.
Philadelphia, Pa. 131 South 12th St.
San Francisco, Cal 504 Sutter St.
St. Louis, Mo. 209 No. 10th St.
Troy, N. Y. Fulton & Fourth Sts.
Washington, D. C. 702 10th St., N. W.

Canadian Representative: W. J. Westaway Co., Ltd., Hamilton and Montreal

WILLCOX & GIBBS SEWING MACHINE CO., Ltd.,
20 Fore Street, London, E. C. 2, England

Branches

Nottingham Leicester Birmingham Luton Manchester Leeds Glasgow Belfast
Paris Brussels Milan



By means of a chart like the one shown here it is not only possible to check the production of departments against a desired standard, but an individual can keep a graphic picture of his own work before him. This tends to friendly competition and increased interest.

How White is a "White Fish"?

The brilliant whiteness that time lets alone—
like goods that are bleached with Solozone.

(A permanent white without weakening, soft, odorless and elastic)

Send for any of these interesting Booklets

"Make your own Liquid Peroxide"

"Efficient and Economical Bleaching"

"The Public want better Bleached Goods—Where can they get them?"

R&H CHEMICALS

We are equipped to process sample lots of any size under mill conditions and instruct the bleacher

The ROESSLER & HASSLACHER CHEMICAL CO.
713 Sixth Avenue
New York

came to me and voluntarily asked if we could furnish each of them with a chart so they could keep a separate record of their individual productions. I was glad to do this of course, and now they vie with one another in seeing who can keep his line nearest the standard and straightest across the sheet.

The fact that the boys asked for the chart gives me an opportunity I could not use otherwise. Being naturally on friendly terms with them, I can show them positively that a "wild party" or a "late date," or eating "hot-dogs" at midnight or carousing around on the night previous *will* affect how much money they make, because it will show up on their charts just as surely as the sun rises.

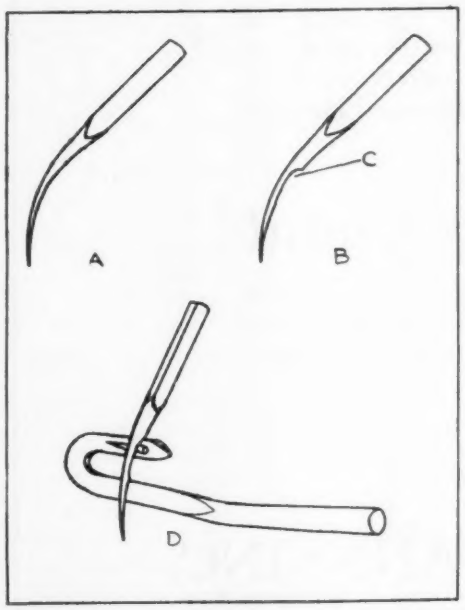
CONTRIBUTOR No. 4325.

A Kink on the Merrow Seaming Machine

EDITOR COTTON:

I have been connected with the hosiery manufacturing business for about twenty years, and I am going to describe in this letter one of the best things I have ever seen applied in the mill from the standpoint of the results secured from the effort and expense. I hope you and the readers will not think I am over-enthusiastic about it, for it really does the work I claim for it, and I recommend it to those of your readers who can use it.

I refer to a special method of fixing the needle on the Merrow seaming machine. It is illustrated in the accompanying sketch. It will be noted that *A* is the regular



shape needle for the 60UD machine. My idea is shown on the needle, *B*, on which, it will be noted at the point *C*, I have taken a little stock out of the body of the needle, causing a little depression in the surface right at the point where the lower looper hook comes to take the stitch off of the needle. A view of the needle shaped in this manner in position with the lower looper hook is shown at *D*.

The practical knitting mill man will see at once that this allows the hook more room for taking the stitch off of the needle. It prevents drop stitches and eliminates, practically, the breaking of the needle thread. Also, it will readily be seen, it saves the points of the hooks, as I know from experience.

The concern furnishing our needles fixed ours up in this way, and call it "spotting" the needles. This spotting can be done on any number of needle used.

I would like to know what the readers of "Knitting Kinks" think of this idea.

CONTRIBUTOR No. 240.

Instructing Knitting Machine Fixers.

EDITOR COTTON:

The duties of a head machinist or foreman in a hosiery mill are no easy task, when we consider some of the things he is responsible for, which mainly are the mechanical condition of the machinery, and the training of apprentices as fixers.

Hosiery machinery, such as the Scott & Williams machines, require expertness in adjusting and attention. It takes a mighty good man to know how to direct this work, get out the most production with the least waste, which in turn of course cuts down the cost of production, and makes more profits for the firm.

The foreman or head machinist of course depends upon his machinists or fixers to keep the machines in running order, and it is his training of these machinists in all phases of the work, and his directing, which produces results.

In hiring a new machinist on these machines, it is very difficult to pick up the right sort of fellow suited for this work. Before he is hired, it is ascertained whether he is mechanically inclined, intelligent and industrious.

The writer has had the experience for several years of breaking in new machinists on Scott & Williams machines, and has been fairly disgusted with the attitude that most of these beginners take toward the work.

It is not because these beginners were not interested in this work, for I have yet to find one who was not, but the way they go about their work, their actions and the attitudes they take.

In practically every hosiery mill results are demanded from those responsible for the running condition of the machine; the prices of raw material are high and the needles cost considerable. The operators, who are on piece work, cannot get out production if their machines are constantly turning out imperfect work, or are idle due to mechanical troubles.

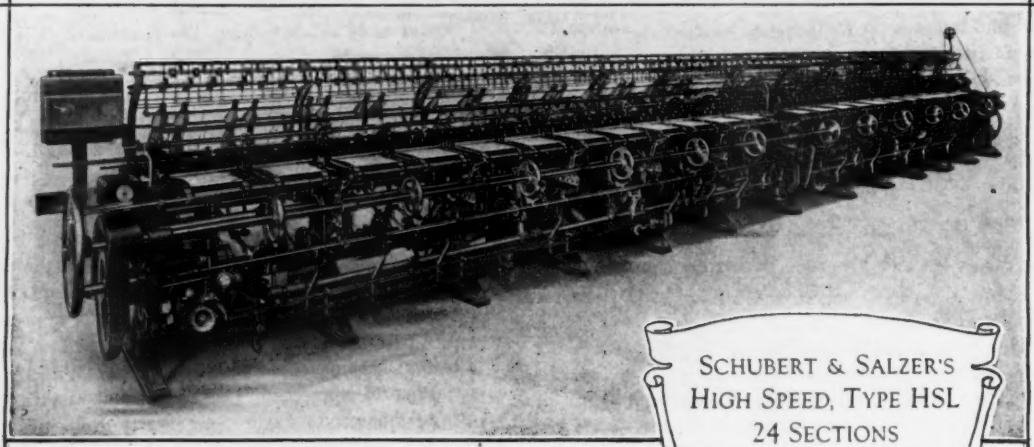
During the course of training, the head machinist can quickly ascertain the good and bad points of each beginner. His intelligence can be ascertained by the quickness with which he grasps an explanation. His industry by the way he goes about his work.

If a beginner has certain faults, at the start, it is up to the head machinist to correct those faults. Do not by any means bawl him out, but show and tell him constructive ways to correct the faults.

I have been fooled many times by beginners, who, when starting in on this type of work, would show the necessary qualifications of a coming good machinist, but only in a few months time would fall down on the job. What was the cause?

I had one man who I thought was going to make a

HOFMANN



SCHUBERT & SALZER'S
HIGH SPEED, TYPE HSL
24 SECTIONS

Does Quality Count?

IN THE PRODUCTION of silk stockings, the machine that consistently produces clear and even fabric is preferred. That means High Speed Full Fashioned Hosiery Machines, Type H S L.

Does Quantity Count?

Up to 65 courses a minute is the enviable record of these machines. Finest quality plus maximum production are assets that protect you against competition.

Let us prove it—by a demonstration

ALFRED HOFMANN, INC.
WEST NEW YORK NEW JERSEY

"Full Fashioned Hosiery Machines"

HOFMANN

cracker-jack machinist. He showed the skill and makings of a good one. But before he was on the job six months he got the big-head, so to speak. You couldn't tell him anything, and he didn't want to have anyone tell him anything. Of course, at first, we had no objection to this attitude of his, so I let him go to it just to see what he could do. But it wasn't long before his operators began to complain about their machines; they were turning out bad work, and several were down waiting for repairs. At this point I of course, had to step in, and get the machines in running order, which was much to the dislike of this fixer. I had an understanding with him then that he either had to get this "know-it-all" attitude out of his head or we would have to replace him. Unfortunately, this seemed to be an inborn trait of his, and I had to let him go.

Anyone who has used Scott & Williams machines knows what can be learned in six months time.

It has always been my policy, in starting in a new man, to give him a certain number of machines to take care of, with the understanding that he is not to hesitate about asking questions about the work if he does not understand it thoroughly.

We had started in another young man who proved to be an exceptionally good machinist, but he could not get along with his operatives. He was always quarreling and arguing, and caused so much disturbance that we had to let him go. The machinist has got to get along with the operators he works with. If they do not, they cannot get the cooperation necessary to produce results. Machinists and operators are all working toward the same end, results, and results cannot be obtained by constantly having friction with the operators.

Jerry was another man I started in the fixing game. He did his work fairly well, but was slow in grasping the principles of the various movements of the machine. When his machines were in running order he felt all he had to do was stand around and talk. Whenever some mechanical trouble developed he found himself in a hole and had to call for help. A beginner in fixing machines of any make, when his machines are running, and he is all caught up in his work, should make it a rule to make the best of those opportunities and find out the principle of every knitting and mechanical movement on the machine. There are many principles to find out. Every part of the machine performs a certain function, and each part has some relation to the other. The more effort put into this, the easier and quicker will it be for the beginner to fix his machines.

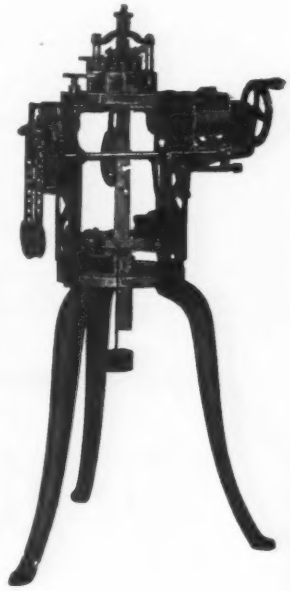
But by no means of course have I found all of these beginners to be failures, for I have many fixers on the floor who are experts in their work, and all due to the fact that they have taken a real interest in their jobs. They are always on the job, finding out as much as possible by observation, and are constantly on the alert, asking questions about everything that is not clear to them.

Tom had just started as an apprentice, and had all the qualifications necessary for the making of an expert machinist. In starting Tom out, the first week I trained him on the fundamentals of fixing, the names of the various parts of the machine, and their functions. I have learned by experience that the quickest way to make a machinist out of anyone is to throw him in, so to speak, and let him swim for himself. The next week I gave him some machines, and told him he was to do all the fixing on those machines, and would be held responsible for the condition

Who's Responsible?

WHEN your product fails to measure up to the standard your market demands, or when your seconds and imperfects run away with profits—who do you blame?

The surest way of securing uniformly high quality production—to absolutely control the grades of your output — is to install knitting machinery that has back of it an unquestioned reputation of quality performance covering many long years of service to manufacturers.



We will gladly send you full information of our complete line.

H. BRINTON COMPANY

3700 Kensington Avenue Philadelphia

CIRCULAR BRINTON KNITTING MACHINES

Great Britain and the Continent: Wildt & Co., Ltd., Leicester, Eng.

Australia: J. H. Butter & Co., Sidney, Melbourne.

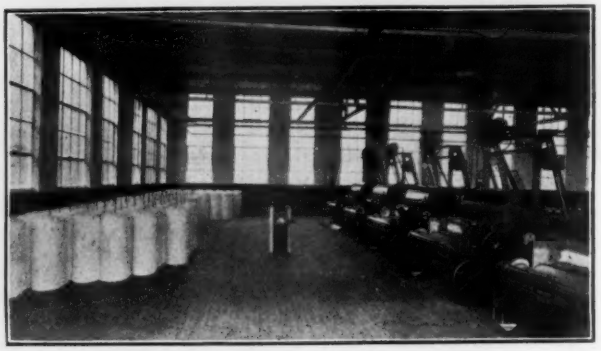
South America: Santiago Scotto, Moreno, 1756. Casilla Correo 622, Buenos Aires, Argentine Republic.

FOREIGN AGENTS

China and Japan: Elbrook, Inc., 31 Kiangse Road, Shanghai, China.

SPINNERS MERCERIZERS GASSERS BLEACHERS

Careful selection of raw material, modern equipment, skilled labor, and careful supervision of both spinning and mercerizing are reasons why STANDARD MERCERIZED YARNS are best.



STANDARD-COOSA-THATCHER COMPANY
CHATTANOOGA, TENN.
Sales Offices: Lafayette Bldg., Philadelphia
Canadian Representative: Wm. B. Stewart & Sons, Ltd., Toronto, Montreal

Standard
Mercerized Yarns

Single Yarns
Mercerized
Bleached and Dyed
on Cones

THE ELMORE COMPANY
MERCERIZED
YARNS
Spindale
N.C.

Specializing in Fugitive Shades
for Plaiting and Splicing

The ELMORE Co.

Spindale, N. C.
Licensed Manufacturers Tinted Yarn
Selling Agents JOHNSTON MILLS COMPANY
Charlotte, New York, Philadelphia, Reading, Chattanooga

of the work they made, and assured him he should not hesitate to ask questions about anything not clear to him.

I soon found out that Tom was not backward about asking questions. One question in particular seemed to be a stump for him, so I will repeat it here:

"Rymi," he said, "there seems to be several machines in this set that are cutting out in the gores of the heels and toes, as you will see by this hose. I have traced the needles and sinkers down, and looked to see whether the yarn was caught in any way, but everything seems to be all right. What do you think is the cause of this?"

"Well," I answered, "there are several things that will cause this cutting out in the heels and toes, Tom. Bad needles and sinkers are the first two things to look for. The heels and toes knitting too tight is another. If your sinker cams are not set properly, this might be causing it. These sinkers should be set so that the back of the needle is even with the throats of the sinkers as the needle rises. Look these things over, and let me know what you find.

"Heel and toe trouble," I continued, "should be watched very closely, especially where a great many machines are being run. Uneven heels and toes show up quite frequently, due to the wear of the stitch cams, one stitch cam being shorter than the other. The appearance of the finished hose is spoiled by this defect, and it should be watched for. The proper procedure is to take out the shorter cam and replace it with a longer one. The gauge of the stitch cams is supposed to measure 13/16-inch from the bottom of the stitch cams to the bottom of the bracket. Don't cut the longer cam down a little to make it even wih the shorter one, as this will get them off gauge and cutting out in the gores will result. The left-hand side cam in relation to the stitch cam also has a great deal to do with this trouble. This side cam is adjustable so if it is set too far ahead, the hooks of the needles will rise before the sinkers come in to cast off the loops, causing strain at this point and cutting out. The same thing results if the side cam is set back too far, the sinkers coming in too soon to cast off the loops of the cylinder needles before the cylinder needles begin to rise."

Shortly after I finished talking, Tom came back, and said, "Well, Rymi, I looked these things over which you suggested, and found two of the machines with the stitch cams too short on the right hand side, and the others were caused by the sinker cams not being set right."

"Well," I suggested, "take out your short cams, and renew them, Tom, but before you do that, look and see if there is any play in the screws which hold the cam to the bracket. If there is, just tap the threads down a little further, then you will not have to change the cams. You shouldn't have any more trouble fixing the heels and toes, I don't believe."

I have always made it a policy to have the machinists show me all parts which are defective and need renewing. I have found if this is not done, the men will become careless and extravagant with parts, and as parts are proportionately high in price, a great saving can be made by this policy. Many times parts are asked for where the old ones would do, it being necessary only to give an explanation as to how to make the part work.

Any man can fix a machine by constantly putting in new parts, but it takes a good machinist to make the old ones work wherever possible. RYMI.

Keeping a Check on Production.

EDITOR COTTON:

As I understand the idea of the "Knitting Kinks" department of COTTON, you operate it as a place where knitting mill men can discuss with one another various ways and means that each of them has discovered for eliminating waste, increasing production and efficiency, and other points of mutual interest.

I think it is a mighty good idea. Probably one difficulty you have in persuading the mill man to send in information is a feeling on his part that the idea he has might not interest anyone else besides himself. But you never can tell, because I have gained several pointers from the letters that have been a material help to me. I think a man can do himself and his fellow mill men a lot of good by participating in such an exchange of ideas and opinions. I am saying this because I thought perhaps you might publish this letter, and that in that way some other mill man might find out how I feel about it, and be moved to the point of telling you something he has done that has helped him out.

You have been publishing from time to time various ideas of different men for keeping check on production, etc. I have a system that operates very well. At the beginning of each week I find out from each of the fixers how many machines he has in operation, and, knowing the product, I estimate the possible capacity of each fixer's section. In the knitting room I have a blackboard on the wall, and on this I put each fixer's name, then the number of machines he has operating, then the figured capacity of the day. This is done each day, and our foreman puts down on the next line opposite each fellow's name the number produced, and also adds the percentage of the estimated capacity that this figures. This gives a comparative record of production, so that all may see it. It gives a spirit of friendly competition to the work, and also lets us know how things are going. We can figure up the total daily production against the estimated capacity and find out how the mill stands on that basis, and also can calculate this for the week's run.

I wish to compliment you upon the series of articles on using and adjusting the Model K and Model R I machines, written over the signature of "Rymi." These are the most practical articles on knitting I have ever seen published. I, myself, and our men have been following them with interest, and we sort of regret to see that the series has ended. Why don't you put these articles up in the form of a small convenient booklet for distribution among the knitting mill men? I wonder if that has occurred to you or any of your readers?

CONTRIBUTOR No. 3413.

As a token of interest in the work of the Textile High School of New York City, Col. Herman A. Metz annually presents several prizes to students for their efforts. The principal, William H. Dooley, has announced the winners in chemistry and dyeing, Daniel Leimen taking the first prize, and the second prize being won by Abraham Winokur. The winner of the Herman A. Metz prize for hand decorated fabrics in dyes has not yet been determined. It will take the form of a medal. The student producing the best piece of batik for the term ending in February likewise was awarded a prize.

The Yarn Market

Philadelphia, Pa., August 17th, 1926.

The last two weeks in July brought about a condition in the Philadelphia cotton yarn market which presaged an improvement in the situation all the way through. There was no general change of a definite character noticeable during this period, but mainly a change of feeling was very evident; and along with this, reports were made of increased inquiry and business in individual cases. Combed numbers fared better in this respect than did the carded yarns in the list, as the latter seemed to be going a-begging at the lowest prices of the protracted decline, in some cases.

The main feature of the improvement was in a better feeling, perhaps, as there was comparatively little change in the amount of business done, and instances of course could be found where concessions were being made for sales. The spinners were especially firm in their attitude, but their position alone was not sufficient to induce any material alteration in market conditions, since other factors combined to exert an offsetting influence. So far as prices were concerned for this period, carded yarns experienced some general declines, with the combed section exhibiting comparative strength. This refers to the general business transacted, because, as stated, spinners' price ideas were stiffening with certainty.

During this two-week period which closed the first seven months of the year, salesmen reported the attitude of yarn consumers as remaining apathetic in yarn market interest, the position they have held during the first half of the year, which has seen a decline of a duration not matched since the drop in 1920. They continued to hold out for business on their own products. This situation was affected somewhat by the definite reports of improved conditions in dry goods fields, though the yarn consuming end seemed to have felt little effect of this in the way of broadened business.

The better feeling came about largely as a result of a realization that business generally in the country was disregarding any bearish thought and continued to move forward, as well as the proximity of fall and winter, for which seasons the prevailing hand-to-mouth policy it was felt, would expire by the end of August. Another factor in this was the approach of the period which would mean the end of the perennial summer dullness and vacation time.

With this improved background, August came along, and immediately the unusual situation of stiffer prices, improved inquiry and better feeling prevailed. This combination of these three features had not been realized in this market in some time. Furthermore, stabilization of spinners' prices had been effected, and it was well known that stocks of yarns, through discreet handling and manufacturing, had been brought down to possibly the lowest point of the year, speaking generally.

Therefore, the advent of this month saw a recovery in rates throughout the list. This ranged for the first week between one and two cents for the counts as a whole, carded yarns sharing the strengthened position with the combed numbers. The increase on August 2nd represented the first general marking up in carded numbers in about seven months. The market control was with the spinners, and with their revised position and methods, a determination on their part to retain it, which was evident, had a real significance.

While there was no rushing to market as a result on the part of the consuming trades, better interest certainly was displayed, and in view of all of the conditions affecting the market, it is felt that it will enjoy a healthier period now for some time.

The Government report at the opening of the second week in August, overshooting most estimates by about a quarter of a million bales, caused a cut in prices amounting to around a half a cent, but this was recovered on the following day, and the effect overcome. Later in the week, however, losses in cotton influenced the market in the form of some further reductions, but at this writing the condition is much improved fundamentally over that reported last month.

Philadelphia prices on August 14th follow:

Single Skeins.

4 to 8s	27½	10s	28
10s	28	12s	28½
14s	29	16s	29½
20s	30	24s	34
26s	35	30s	36

Single Warps.

8s	28½	10s	29
12s	29½	14s	30
16s	30½	20s	31½
26s	36	30s	37
40s	48		

Carpet and Upholstery Yarn in Skeins.

6s 3-4 hard white warp twist	27
8s and 9s 3-4 tinged tube	23
8s ¾ hard twist waste	22½

Two-Ply Skeins.

8s	28	10s	28½
12s	29	14s	29½
16s	30½	20s	31½
24s	34	26s	35
30s	37	40s	47

Two-Ply Warps.

8s	28½	10s	29
12s	29½	14s	30
16s	30½	20s	32
24s	35	26s	36
30s	38	40s	48
8s	28	10s	28
12s	28½	14s	29
16s	29½	18s	30
20s	31	22s	31½
24s	32½	26s	33½
30s	35	40s	47
30s double carded	37	30s tying in	34½

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	38 @40	20s	42 @45
24s	45 @46	30s	47 @50
40s	53 @56	50s	58 @61
60s	67 @72	70s	80 @83
80s	90 @95		

Single Combed Peeler Yarn on Cones.

18s	40	24s	43
30s	47	36s	52
38s	55	40s	57

Mule Spun Carded Yarn on Cones.

10s	33	12s	33½
14s	34	16s	34½
18s	35	20s	35½
24s	37	26s	38
30s	40	40s	50

Mule Spun Combed Peeler Yarn on Cones.

10s	42	12s	43
14s	44	16s	45
18s	46	20s	47
22s	48	26s	50
28s	51	30s	52
36s	55	38s	56
40s	61		

The policy of the Ciba Company to furnish complete data for the successful use of their colors has inspired the preparation of three new handbooks. Ciba, Cibanone and Chlorantine fast colors are fully treated. Properties of the colors, instructions and tables for their application, together with sample dyeings, make these books of value to every user of dyestuffs. They are being distributed to the trade without charge.

RAYON

RAYON

wound for all types of textile products

WHEREVER Rayon is used in the manufacture of Textile products, Universal Wound Packages are acknowledged to be the practical, economical supply.

If your process uses Rayon in package form, cones or bobbins for knitting, bobbins or cops for broad loom weaving. Quills for narrow loom weaving, tubes for insulating or cops for braiding, Universal Winding offers greater efficiency and economy both in the winding process and in the use of the wound package as the supply for your machine—

We are proving this daily in actual mill operation.

UNIVERSAL WINDING COMPANY

Providence, Chicago, Utica, New York. Philadelphia, Charlotte, Atlanta.

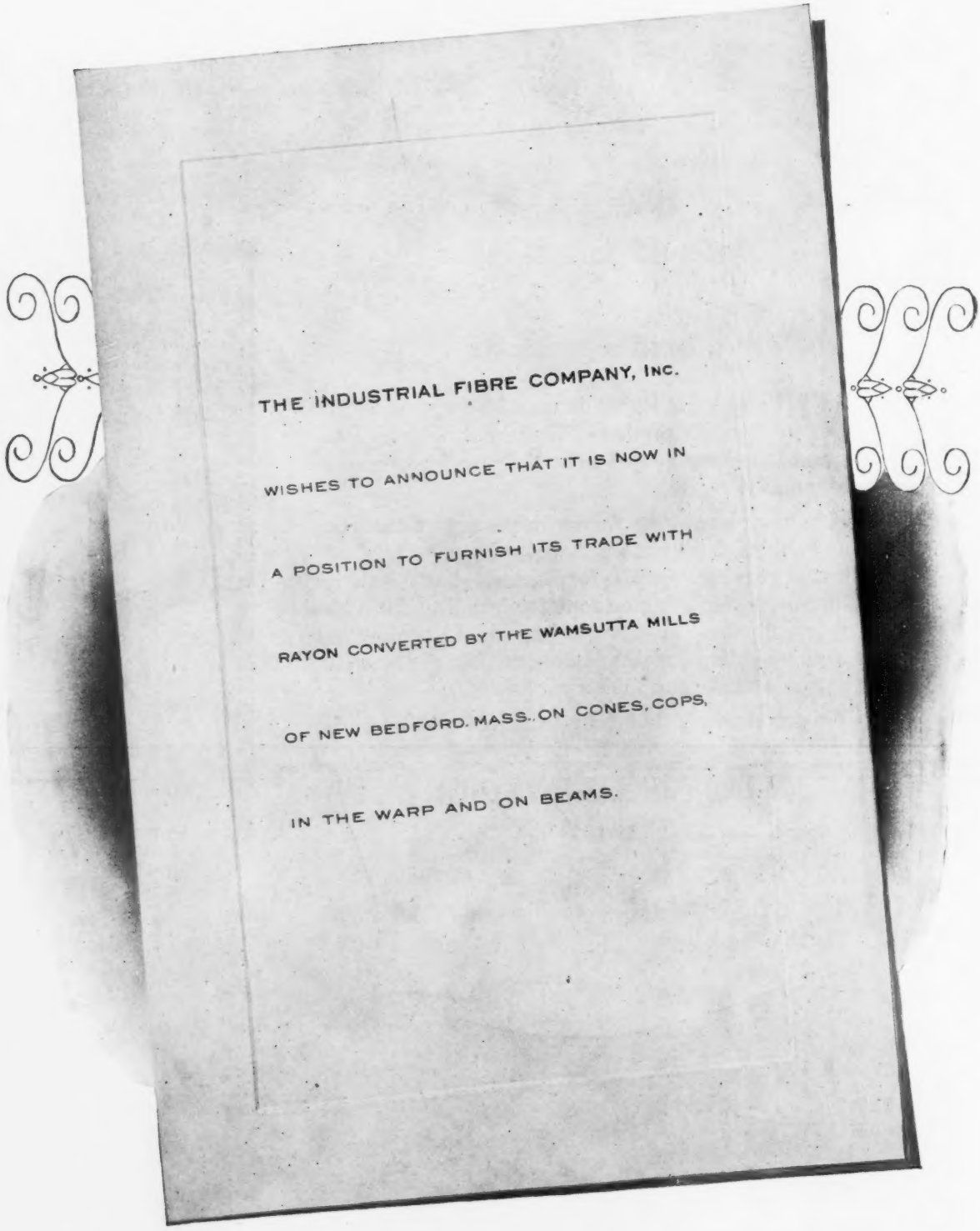
LEESONA

BOSTON

DEPOTS AND OFFICES AT MANCHESTER AND PARIS

Montreal and Hamilton, Canada

UNIVERSAL WINDING


THE INDUSTRIAL FIBRE COMPANY, INC.
WISHES TO ANNOUNCE THAT IT IS NOW IN
A POSITION TO FURNISH ITS TRADE WITH
RAYON CONVERTED BY THE WAMSUTTA MILLS
OF NEW BEDFORD, MASS., ON CONES, COPS,
IN THE WARP AND ON BEAMS.

The Knit Goods Market

As if by agreement, the buyers for a number of important knit goods jobbers reached the New York primary markets last month after the hot wave had spent its force. Their presence precipitated no briskness, but served to invest the market with a more wholesome atmosphere, denoting as it did a revival of interest in merchandise for fall. Among those who came to do business were several who had not placed initial orders for wool hosiery, heavy weight underwear and sweaters. They were especially welcome, as underwear had been woefully lagging and comparatively little business had been taken for distant months in either line. It marked the beginning of the fall movement and heralded a better situation than prevailed for some months.

Retailer stocks are at the lowest stage in years, is the belief among jobbers, and the jobbers themselves are not carrying enough to cause worriment among them. So the fall season starts with promise of a demand for goods in the major knitting divisions. Direct-to-retailer hosiery and underwear manufacturers selling under their well known brands for several years have been adding new accounts at a rate to indicate that somewhere there is laxity in the matter of keeping jobber stocks adjusted to the retailer policy of buying as customers bare their shelves of goods—a policy that is perhaps better described by that hackneyed hyphenated term "from hand to mouth." These accounts are being taken mainly from jobbers who themselves starve their stocks in pursuance of that policy, while, it has been made manifest, those jobbers who function in the way implied by the word "jobber" are expanding their business—taking advantage of the jerkwater methods of others.

The spotty conditions in the knit goods primary markets are openly charged to a large element of the jobber body by one of the better known trade analysts. The situation, he points out, is not due to crop conditions or to conditions in business generally. While he declines to predict whether the hand-to-mouth policy is here to stay or is but temporary, he does believe that as jobbers who are losing out in the competition for retailer trade come to realize why, many will apply the one remedy for the condition of which they complain—and buy as their successful competitors buy and have stocks to be fed out to retailers as called for, affording them opportunity for multiplicity of turnovers. The retailer fraternity probably never will put goods in stock for longer periods than a few weeks, being educated to the fact that if jobbers cannot supply them in their own way there are mills aplenty that will.

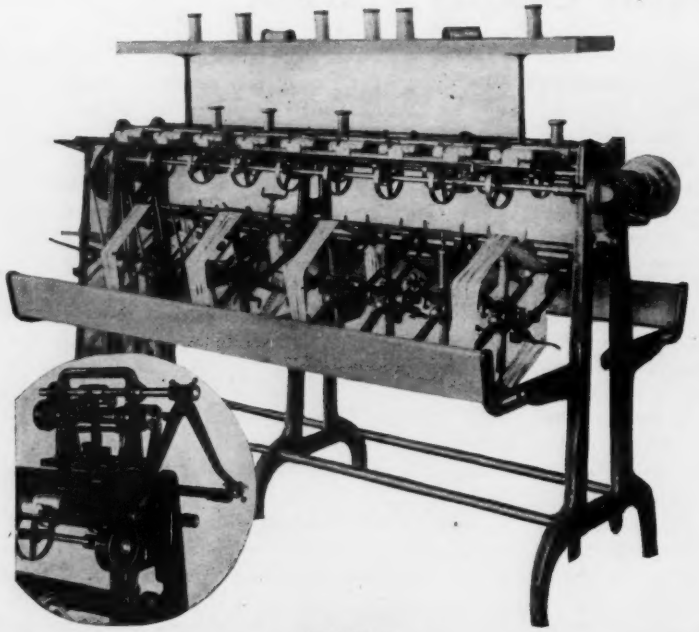
Hosiery.

Standard full fashioned silk hosiery for women is in well sustained demand for fall, and goods for immediate for a price are scarce. There is especially much inquiry for medium weight to pass over the retail counter at $1.25 a pair. Even the short silk boot stocking, a drug on the market for a time when silk-to-top and four-inch welt became the passion, has been cleaned up. Goods worth around $10 dozen to jobbers were let go in some instances to about $5, and now are showing a substantial profit for speculators who were willing to relieve scared manufacturers and jobbers of their holdings on a severe shading.

With the 20 inch boot goods now out of the way, so far as applies to surplus, there is more attention to semi-sheer, of seven to eight strand, and demand is strong for 39 gauge and coarser, for retail stores which feature price. While a dollar full fashioned is a bare possibility, $1.25 is for the time the minimum price in a regular way, and high grade seamless long silk boot for a dollar should make no little headway. A Scott & Williams 300 needle stocking is receiving considerable attention for the fineness of the fabric and certain improvements in the knitting by which minor objections in latch needle hose is said to have been overcome. The Ipswich Mills quite recently announced a new and better stocking for the dollar price bracket, and other manufacturers are forsaking price and featuring appearance and durability in the exploitation of their lines. The gap between seamless and full fashioned as to both price and construction is being gradually narrowed, but it is apparent that the tide is flowing strongly to the latter.

Representative seamless mills in Philadelphia and the Reading district are by no means operating to capacity and have no difficulty in taking prompt care of the business that is offered or can be dug up. So far as can be ascertained, all of the full fashioned plants are on full time schedules and some few employing two shifts of operatives or stretching the day by an hour, and there are no accumulations of stock. The situation as between the two classes of women's silk hosiery is this: While seamless manufacturers are, as a class, operating plants on reduced schedules and in need of orders for maintaining that stage, numbers of full fashioned mills are sold well ahead and there are buyers in line for the product of mills which will not be in operation for several months. The accounts of two full fashioned factories being set up in Reading, for example, are being actively solicited by mill agents and commission houses. Neither will be knitting until late in the year. There is a well founded report that the Burkey Underwear Mill in Hamburg, Pa., will install full fashioned hosiery machinery, intending, perhaps, to transfer the underwear equipment to a branch factory at Leesport.

Doubtless a factor in the eagerness of distributors to protect themselves as to their fall requirements of full fashioned hosiery is the curtailed production in July and August, when unionized mills did not operate Saturdays and numbers of others were idle for a week for the customary vacation. Figuring also in distributor concern over supplies for later months is the fear of a labor controversy in some sections by which there might be a cessation of operations in strongly unionized plants. It may be significant that a New York distributor desirous of taking on an additional mill account is giving preference to manufacturers beyond the zone where, he believes, the first drive in an effort for union domination would be made. "I want a mill less likely to be affected by labor trouble," he says. Recollections of the hosiery famine during the nine months strike of 1921 are unnecessarily disturbing, as there is nothing in surface indications to warrant fear of anything more serious than a repetition of such controversies as recently arose in several mills in Philadelphia and were speedily adjusted because the employers affected maintained a firm attitude and made it apparent there



4F Style

Built Especially To Wind RAYON

THIS high, narrow type of winder, built to wind Rayon and hard or soft silk requires only a minimum of floor space.

Either the automatic screw traverse, or the regular patented cam Traverse with adjustable throw can be adapted to this Atwood Machine to wind perfect, smoothly wound bobbins.

The Atwood is the only winder made with gear gain adjustable swifts.

The 5B Spinner

This spinner represents the highest point in silk-throwing evolution. It doubles and spins up to 14 ends of silk or Rayon, and produces perfectly wound bobbins. Improved features such as the 2 inch feed roll, spindle swing holder, and chain and sprocket drive insure uniformity of production.

Specifications and prices on request.

The Atwood Machine Co.

Established 1863

Stonington, Conn., **95 Madison Ave., New York City**

Southern Representative: H. L. McCall, Cutter Bldg., Charlotte, N. C.

ATWOOD

SILK THROWING MACHINERY

could be no acceptance of the demands imposed.

A compilation of reports of manufacturers indicates that in the first half of 1926 production of full fashioned silk hosiery for women gained approximately 33 per cent over the corresponding period of last year . This was about the same per centum of gain as in June, making comparison with June of 1925. While there is much new installation, expansion is not on as large a scale as last year.

Seamless silk output in June was greater than in May but fell off as compared with June of last year, and lost rather heavily for the first six months of this year, as did rayon hosiery and silk in mixture. In the preparations being made by jobbers for the fall trade it appears that seamless silk will be more freely taken. This may be attributed to acceptance of seamless for the months when long coats cover so much more of the limb than is exposed in other periods, and improvement in seamless goods doubtless has something to do with the apparent drift. But any attempt to cheapen the seamless for price competition would be proven an unsatisfactory undertaking for manufacturers having recourse to it.

In hosiery as well as in underwear for women, the use of rayon is viewed by many factors as distinctly a price expedient. In a general way, rayon stockings lost ground in competition with the all-silk and silk mixture long boot, even though they were brought out with the longer boot. The indicated drop in output this year, making comparisons with the first six months, was 26 per cent, from 1925. Probably rayon's liveliest competitor is the silk plaited on rayon, a good service stocking at a low price. The latter, of three to four thread silk, of superior construction, continues a good dollar stocking, while the two strand fills the low price niche and is popular among chain stores, which constitute the better outlet for numbers of mills.

Only a light volume of business appears to have been placed for silk and wool hosiery for women. As in men's half hose, there are in some quarters considerable stocks carried over from last winter. Pattern hose for other than sports wear seems to have passed out, while two tone goods are promising of a fair measure of favor in women's lines. In half hose, patterns, as shown in lines recently put on the market, will run to large rectangular and irregularly shaped blocks, as superseding the stripes so popular in light weight socks, in which novelty appears to have lost none of its appeal. Dollar hose for women and half hose for the 50 and 75 cent price brackets will be the volume sellers in silk-and-wool lines, but in the primary markets there is said to be no indication that either will figure as heavily in fall and winter retail sales as last year.

Novelty half hose for current use continues active, more particularly in lines at 50 cents and lower. Novelty socks are probably the retailer's better proposition. Man buys them for pattern, usually not stopping to inquire as to the precise character of the content. He will pay in one store a given price for a sock that in some other shop may be 10 cents higher or lower in price.

Recently there have been free offerings of novelties by mills, retailers buying rather heavily for special sales. There is a disposition to unload light weights and old patterns with the approach of the change to heavier hose, whether of silk on rayon or on mercerized yarn, and in the view also that pattern so-called wool socks may come into better demand than at the moment is indicated. In many of the retailer special sales there is seen considerable of mercerized half hose for which jobbers pay around $1.70 a dozen for standard 220 needle. According to placards in the shop windows the mercerized is "marked down to a quarter a pair from three pairs for a dollar." Cotton hose for export were bought in larger quantity during the first half of this year than in the last half of 1925, while silk declined in volume, rayon scoring a substantial gain.

Although novelty half hose appears to be safely anchored for another big season's run, it is observed that more silk in plain colors is being used. Staples are reported more active by several important primary market operators, and silk was taken more freely by considerable in July and August for spot. Split foot socks of 16 to 20-thread silk are regarded likely to have a fair sale for winter, while for current use a 12-thread, at $4.25 to jobbers, is moving out well for several mills specializing in construction and finish. Such a sock must compete with a 10 strand full fashioned one line of which is quoted at $4.50 a dozen. The latter, ordinarily, will as readily fetch a dollar in a retail shop as the seamless will sell at 75 cents. Obviously there is a substantial profit for dealers in both lines. Hardly has the consumer yet felt the effect of price reductions by manufacturers.

A serious disappointment to a half dozen or more Pennsylvania half hose manufacturers was the sudden decline in call for polka dots. They had orders in May and June for more cases than they could produce for the deliveries specified by jobbers. By the latter part of July cancellations, in several instances amounted to one-third of the orders. Manufacturers' losses were recouped in part by redyeing. Those who produced the dots by extracting were the harder hit, it appears, as, while this is the better process, extractors were not able to complete orders during the height of demand, while printed dots were being turned off as fast as orders were received and shipped out before the slump became pronounced. But there still will be business for well established extractors, it is believed, notwithstanding the perfecting of devices for knitting in almost any form of striping or hodge podge patterns desired. In fact, there are knitted-in medleys which might easily be taken for jacquard construction. Polka dots virtually became commonplace before they could get a fair start, besides, they proved too tame in contrast with stripes and could not be rated as a staple.

Advance business in children's hosiery is being placed by jobbers along more rational lines. It took most jobbers six to eight weeks to make up their minds to operate. Immediately following the opening, some few manufacturers boasted of "orders," and they had them, but, generally speaking they were open orders, which usually are accepted in the knowledge they are subject to recall or downward revision. It was said at the time that much of the blame for the procrastination and fickleness of buyers lay with manufacturers, in that when a jobber was about to write details somebody would come along with a lower price or something different in construction. Most of the muddle involved infants socks, but by the latter part of August matters began to run along comparatively smoothly for all.

Buyers were sparring for price, on the lower cost of rayon and mercerized yarn, comparing with a year ago,

ABERFOYLE MANUFACTURING COMPANY

MERCERIZED YARNS

MAIN OFFICE
BANKERS TRUST BLDG.
PHILADELPHIA
323 SOUTH FRANKLIN STREET
CHICAGO

JAMES BUILDING
CHATTANOOGA, TENN.

READING, PA.

MILLS
CHESTER, PA.

JOHNSTON BLDG.
CHARLOTTE, N. C.

WESTAWAY BUILDING
HAMILTON, CANADA

AMERICAN YARN & PROCESSING CO.

MOUNT HOLLY, N. C.

SPINNERS AND MERCERIZERS

HIGH GRADE COMBED AND CARDED YARNS—16s to 80s

Our Mercerized Yarns Are the Product of Our Own Mills

General Office, Mt. Holly, N. C.

Representatives

R. D. McDONALD,
James Bldg.,
Chattanooga, Tenn.

HAROLD W. O'LEARY CO.,
52 Chauncey St.,
Boston, Mass.

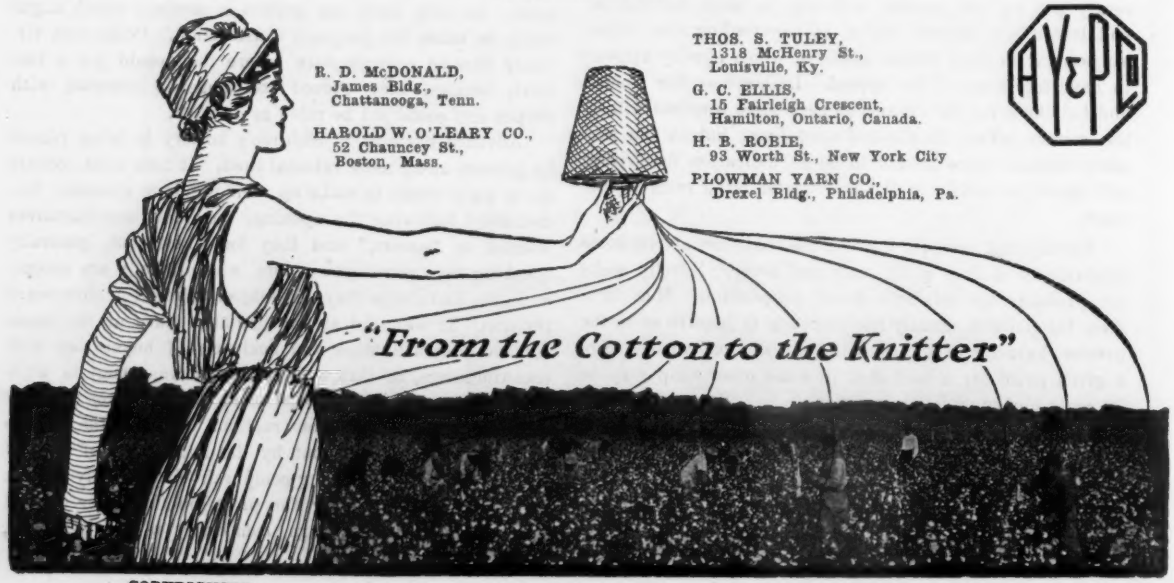
THOS. S. TULEY,
1318 McHenry St.,
Louisville, Ky.

G. C. ELLIS,
15 Fairleigh Crescent,
Hamilton, Ontario, Canada.

H. B. ROBIE,
93 Worth St., New York City

PLOWMAN YARN CO.,
Drexel Bldg., Philadelphia, Pa.

A Y & P Co.



COPYRIGHTED

notwithstanding reductions on the socks were more severe, relatively, than on the semi-raw materials. For example, last year's price for a representative line was $2.35 a dozen, marked down this year to $2.15. This sock is designed to sell at 35 cents—three pairs for a dollar—in retail stores—as previously. While the mill has lopped off 20 cents a dozen, the retail price remains unchanged, so that the revision means only an increased margin of profit in distribution.

The 25 cent sock is the popular number, but distributors wanted it at a price that might bar competition with chain stores getting 10 cents a leg. They wanted a better sock for that bracket than could be bought by the chains for a 20 cent seller. It couldn't be done. For one reason the big chains usually operate in larger quantities than anyone of the larger jobbers and necessarily can buy as advantageously. Which is made a cue for the suggestion that retailers concentrate on 35 cent goods, one factor taking the stand that good shops have no warrant, in the circumstance, for exploiting quarter socks.

Jobbers who buy the lower price socks buy competition for their trade, this factor contends, and it is his view that in the effort to accommodate distributors in matter of price some mills are "putting phoney goods on the market." It is his theory that instead of changing popular primary market prices it were better to improve the construction to the extent made possible by the declines in rayon and mercerized yarn cost, as in this way the consumer might get the benefit of lower prices for raw materials in the way of better goods.

Jobbers who made a cleanup of misses' seven eighth fancy top hose are buying for future months, but sparingly, it is stated, in view of the presumption young misses will wear full length flat hose. Such a stocking, in silk, rayon and silk-and-rayon, is embraced in the range slim, medium, and large, as featured successfully by the F. Y. Kitzmiller Sons Co., selling to retailers. Large operators say the seven eighth sports hose "is not so interesting as last year."

In the apparent drift to long hose for juveniles there has been quite a movement of full mercerized, at a price which is viewed as disastrous to fine gauge combed. One quotation on fine gauge full mercerized was, a few weeks ago, $1.70 to jobbers, which is not very far above a pre-war price, when this type of stocking was a staple among staples. In ribs there is seen a possibility in the 7x1 construction.

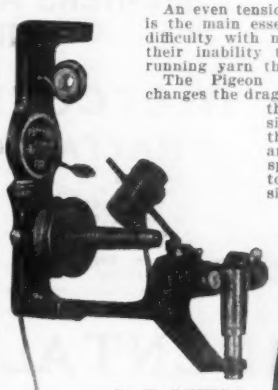
Important factors in low-end cotton hose report demand being well sustained and prices holding with unexpected firmness. Comparing with a year ago, the indicated June production of cotton hose of all classes, including mercerized and low-end novelty half hose, was 23 per cent less, hosiery of all classes dropping by approximately 11 per cent. Last year's stage of exports of cotton hosiery appears to be fully maintained.

Underwear.

Climatic conditions a few weeks hence may determine whether the merchant's lot will be feast or famine in heavyweight cotton ribbed underwear. Few are prepared for a famine at the mills or a feast for themselves. It was conservatively estimated a fortnight ago that jobbers as a whole had not bought for one-half of their probable requirements, and at that time they were giving the market so little support that manufacturers came to believe it was

PIGEON COMPENSATING YARN TENSION

"The Wonder Tension"



An even tension or drag under all conditions is the main essential in proper plaiting. The difficulty with many tensions in use today is their inability to maintain an even drag in running yarn that varies.

The Pigeon Compensating Yarn Tension changes the drag according to the delivery from the cone. It is not a fixed tension, but *automatically* tightens the drag on light or dry spots and releases on heavy or wet spots. It delivers the main yarn to the needles with an even tension or drag at all times, insures perfect plaiting, even lengths and a smooth weave. It can be applied to all Circular Hosiery Knitting Machines. *Ask for full details.*

(PATENTED)

L. H. MYERS
Successor to A. M. Pigeon
2615-17-19 N. 3rd St.,
Philadelphia, Pa.

Southern Representative:
The John L. Bartram Co.
American Bk. Bldg.,
Greensboro, N. C.

Let us send you one or more for trial.

Southern Mills Equipped with Pigeon Compensating Yarn Tensions

United Hosiery Mill Corp., Chattanooga, Tenn.; Dalton Hosiery Mills, Dalton, Ga.; Browning Hosiery Mills, Chattanooga, Tenn.; Harriman Hosiery Mills, Harriman, Tenn.

Zehlendorf Viscose RAYON YARNS

Spot and Future Deliveries

of Finest Qualities

in

Regular Yarns and Special Twists

Immediate Service is afforded through our southern sales representatives

ACME SALES CO. R. D. McDONALD
906 Johnston Bldg. James Bldg.
Charlotte, N. C. Chattanooga, Tenn.

NEUBURGER & CO., Inc.

Sole Agents and Distributors for the U. S. A.
160 Fifth Ave. *Established 1866* New York

DIXIE MERCERIZING COMPANY

SPINNERS AND PROCESSORS
AIR DRIED

Mercerized Yarns

CHATTANOOGA, TENNESSEE

Chicago, Ill.
Fred W. Frank,
166 W. Jackson Blvd.

Boston, Mass.
Allan B. Greenough,
45 Milk St.

Philadelphia, Pa.
Cameron & Pfingst,
308 Chestnut St.

Los Angeles, Calif.
J. V. Calhoun,
Sta. "C", P.O. Box 1566

Charlotte, N. C.
Acme Sales Co.,
905 Johnston Bldg.

Utica, N. Y.
Daiglish & Co.,
Utica Nat'l. Bank Bldg.

Reading, Pa.
Cameron & Pfingst,
Amer. Casualty Bldg.

Toronto, Canada
Slater & Company,
53 Yonge St.

J. Carmichael & Co., Stamford Street, Leicester, England
Sole Representatives for Great Britain

Los Fabricantes Unidos, Inc., 130 Nassau Street, New York, N. Y.
Sole Representatives for Argentina and Uruguay

CONTINENTAL DRI TRANSFERS

The standard in quality—Fairest in p rice—No Dry transfer could do more.

CONTINENTAL TRADEMARK CO.

KNOXVILLE, TENN. 151 EAST 126th ST.—NEW YORK, N. Y. OSAKA, JAPAN

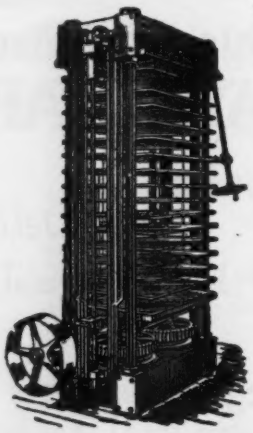
Weimar Bros.

Phone Connections

Works: 2046-48 Amber Street
PHILADELPHIA, PA.

MANUFACTURERS OF

Cotton Mercerized Tapes, Spool Tapes, Bindings and Narrow Fabrics for Underwear and other Trades.



RELIANCE

Hot Plate Screw Press

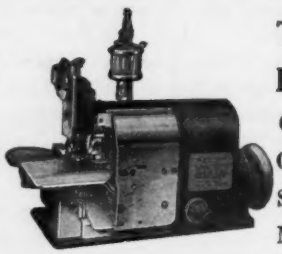
FOR

Hosiery and Underwear

Write for Catalog and Prices

Reliance Machine Works
FRANKFORD, PHILA.

MERROWING



THE MERROW
HIGH SPEED
OVERSEAMING,
OVEREDGING AND
SHELL STITCH
MACHINES

FOR FINISHING ALL KINDS OF KNITTED AND WOVEN FABRICS.

MERROW
Reg. Trade Mark

FOR QUALITY AND QUANTITY PRODUCTION AT LOW OPERATING COST

— MERROWISE —

THE MERROW MACHINE CO.
ESTABLISHED 1838
16 LAUREL ST. HARTFORD, CONN., U. S. A.

their purpose to defer further commitments until standing committed for deliveries to retailers of their initial orders.

Some of the better situated manufacturers reported a few jobbers had contracted for as much or more than last year to the corresponding date, that numbers had taken less and some none at all. Reports of this character came from representative mills in their class, and conditions with them may be said to be typical of those among heavy weight manufacturers generally. Several jobbers of more than average magnitude placed their initial orders late in August.

Among jobbers there has prevailed the thought that cotton might be due for a further decline from last year's values and that in the eagerness of manufacturers for the late business prices would be scaled. "They want us to take goods in with the least possible delay so that if they do come out with a markdown it will be too late for jobbers to demand a rebate," was the bald assertion of one extensive buyer in explanation for his procrastination.

It is the prevailing sentiment that prices are more than reasonable and may be regarded as established for the season. The daily fluctuations in cotton will have about as much influence on near future prices for a dozen pieces of underwear as the fluctuations in wheat on the cost of a 12½ pound bag of flour. Cotton might slip to 15 cents for spot and underwear still would not be too high in comparison with values a year ago. This is admitted by some of the better posted jobbers, who say they can foresee possibilty of a scarcity in the event of an early fall and cold winter. Such a situation developed in October, 1925, when more than one western jobber was wiring for goods to be shipped by express, and getting them late at that.

An early fall will disclose a market bare of underwear for nearby delivery. Should summer linger in making up for its delayed start, jobbers may be fairly well protected with stocks. On the other hand should fall have as early a start, relatively, as the ending of spring was late, pretty nearly all distributors will be doing what mills did throughout the summer—wait. If conditions are so uncertain that it is not safe for distributors to put underwear in stock it would not be safe for mills to make goods for stock.

"We shall buy no heavy weights until we see a need for them," said a buyer for a large jobbing house having wide distribution in the Atlantic and middle states who declares he has covered for about 40 per cent of as many cases as his establishment sold for the last winter.

Numbers of jobbers have been looking for reduced prices for summer underwear and have contracted with extraordinary conservatism for the 1927 season. It was thought by distributors who were holding back with their commitments that prices might drop in August, which was given as a reason why their repeat orders for the current season were in case lots. Retailers, it was explained, were filling in with half dozens, so why should jobbers not replenish in like small manner? Thus the conditions in light weights are as unsatisfactory for manufacturers as in winter weights.

There is especially a disposition to defer so long as possible operations in bal briggans, which admittedly have been fast losing ground to ribs and nainsook athletic suits. When A. V. Norris & Sons, Amsterdam, N. Y., announced a few weeks ago the discontinuance of the manufacture of cotton underwear, after almost a half century of steady operation in various lines, in which their bals were outstanding, it was reasoned the company saw no future for cotton underwear with distributors depending on mills to carry stocks for them until needed for the retail trade. As the light weight machinery is to be used for the manufacture of women's rayon underthings, it may be assumed the Morris company does see a future for that fabric.

With the Morris company out of the game finally, the Lawrence Manufacturing Co. disposing of its factory, Gardiner & Waring Co., moving to the South, as did the Glorie Underwear Co., about the beginning of the year, it is apparent there is under way a new shaping of the cotton underwear industry, and in this connection it may be significant that A. V. Morris & Sons will sell their rayon underwear to retailers, through Rowland Spain, having removed the names of jobbers from their calling list.

But there still is faith in knitted cotton underwear for summer, the gains in nainsook nevertheless. Light weight ribs recently were added to the line of the Sylva Knitting Co., Reading, and are on the market for 1927 deliveries. A manufacturer of varied lines of knitted light weight union suits reports a substantial increase in sales over last year. The initial orders of jobbers who have bought are for about 18 per cent more cases. The business was increased by reinforcing the line wholly of ribs. This manufacturer believes nainsooks have had their peak gain, and that a factor in their decline will be the ribbed shirt and running pants, which this year had a wide sale and are promising of forging ahead in popularity.

A well known branded line of nainsooks is used by a jobber for illustrating the expanding business in the cut-and-sewn athletic suits. This jobber this year increased his sales by 100 per cent, comparing with 1923, and by 300 per cent over 1920, this increase being expressed in dollars. In quantities, of course, it amounts to more. The P. H. Hanes Knitting Co., Winston Salem, N. C., is believed to have fared very well with its line of nainsooks for 1927. The company sells on terms of 2 per cent 10 days and pays freight to destination, and in addition grants jobbers an extra 2 per cent on orders which have been detailed by September 11.

While women's cotton underwear is fast becoming a chain store and catalog house proposition, some of the Pennsylvania mills have had a comparatively satisfactory season. Several, however, proceeded to liquidate with the end of their season. One of these, it now is reported, contemplates giving the line another season's tryout. Cheap vests are feeling more severely the competition with rayon, it is stated by manufacturers, while for ribbed mercerized and fine gauge combed union suits there still is profitable business to be had, it is said.

Sweaters.

A trifling picking up of business in staple sweaters is noted in the primary markets, and the department stores report more interest in women's sports and conservative lines. Shakers are regarded as the better guess, as a broad proposition, but it cannot be said there is volume trading in any one line or in sweaters as a whole. Last year it was the lumberjack that was blamed for the slump in men's sweaters and the this year fleeced coats have been in their way. There still is enough interest in the latter to keep sweater manufacturers on the shady side of Easy street.

Many of the Philadelphia mills are operating on much reduced schedules and some are idle, as they have been for

some time. For mills making both sweaters and bathing suits there has been some compensation for lack of business in the former by fairly good contracting for bathing suits for the next season. Jobber and retailer stocks for the current season proved pretty nearly ample, due to the late arrival of the surf bathing season, and repeat orders have been disappointingly small. That some mills on the market for next year have not gotten the volume of business that was looked for seems to be indicated by requests for deferred deliveries of worsted yarns, for which manufacturers had contracted quite freely, at about the year's lowest prices to date.

Among the Knitting Mills.

A second story addition is being added to one of the buildings of the knitting department of the Wiscassett Mills Company, which will be 110x110 feet, to be used for a manufacturing plant, for increasing the output and general efficiency of the plant. J. E. Sirrine & Company, Greenville, S. C., are the engineers. The building will be constructed of steel and brick. Auxiliary machinery for knitting hosiery will be installed.

Standard Knitting Mills, Knoxville, Tenn., are erecting a three-story warehouse addition, 180x100 feet, of reinforced concrete. The cost will be approximately $100,000.

It is reported that the Pool Knitting Company, Sherman, Texas, hosiery manufacturers, will construct an extension to the plant.

The new Bryson City Knitting Mills, Bryson City, N. C., is practically complete and is expected to be in full operation shortly.

A one-story addition is being built by the Anderson Hosiery Mills, Anderson, S. C. The building is 24x70 feet, and 30 machines for manufacturing bathing suits will be installed.

Kinston Knitting Company, Kinston, N. C., will enter the manufacture of all-silk hosiery, for which machinery has been ordered.

Monroe Hosiery Mills, Stroudburg, Pa., have made application for a charter. Five acres of land have been acquired, and a plant for the manufacture of women's full-fashioned silk hosiery will be erected.

Oakbrook Hosiery Co., Reading, Pa., have received permit to erect a one-story factory building.

A two-story addition will be erected to the Gehman Knitting Mill, Baily, Pa., manufacturers of novelty half-hose. This will practically double the output, it is understood.

The William Carter Company, underwear manufacturers, are planning some radical changes in its manufacturing program. This company, with headquarters in Needham Heights, Mass., operates plants also at Reidsville, N. C., and Barnesville and Macon, Ga. The plans call for the removal of all knitted underwear machinery from Reidsville, to Barnesville, and all finishing equipment on this class of work to Macon. It is understood nainsook underwear will be made exclusively at the Reidsville plant. The re-organization will require some additional equipment, which will be installed where necessary.

John H. Schofield, the head of the company bearing his name operating as jobbers of knit goods, and J. Malcolm Shelmire, vice president of the Sheibley Tyler Co., in like lines, have formed the Schofield Shelmire Co., capitalized for $150,000, all paid in, to deal in underwear, hosiery and knitted outerwear. The company has leased the first floor and basement of 525 Market street, covering 10,600 square feet, and the present quarters of John H. Schofield & Co., at 235 Market street was vacated as of September 1, when the resignation of Mr. Shelmire as vice president of the Sheibley Tyler Co. became effective. He is second vice president of the Jobbers Association of Knit Goods Buyers, an auxiliary of the National Wholesale Dry Goods Association. Mr. Schofield is an ex-president of the same subordinate association. The combination is regarded in the trade as making for a strong organization. The company will employ 17 salesmen, covering part of Pennsylvania, Delaware, the greater part of New Jersey, and the Eastern shore of Maryland.

Distribution of Textiles, by Bureau of Business Research, Harvard University, Cambridge, Mass. 190 pages. Price $3.50 per copy.

The subject of distributing textiles is a ramified problem which at present is receiving more attention from a larger number of interested factors than perhaps ever before. This book is the result of an exhaustive study, aided by prominent textile factors, conducted to ascertain the relative quantities of woven goods purchased by garment manufacturers and other cutters-up, industrial and institutional purchasers, wholesalers, and retailers, giving the relative volume of textile woven goods—cotton, silk, wool, etc.—flowing through the several channels of distribution. Its data are based on actual billings as disclosed by manufacturers and selling agents, and the book contains much valuable and applicable information relating to textile woven goods distribution that should interest the manufacturer, selling agent, wholesaler, jobber and cutter-up alike. It contains a large number of easily-read tables presenting useful and hitherto uncompiled statistics regarding distribution. The book may be secured direct from the address given, or through COTTON'S book department.

The delustering of artificial silk by a comparatively recent process is said by manufacturers of silk-and-wool hosiery to be likely to promote sales of this type of stocking. The deglossing is done in the gray, the treatment being ordinarily applied after dyeing. By the newer method, it is claimed, there is elimination of the glossy spots which heretofore put mechanically perfect hose in the seconds classification. H. Nelson Craig, Philadelphia manager for the Apex Chemical Co., reports the pre-dyeing process having the approval of manufacturers willing to incur a slight addition to the cost of producing perfect stockings.

Of equal importance to manufacturers of silk chiffon hosiery is a finish by which mussing in transportation and handling at the counter is practically overcome. To prevent rumpling in transportation manufacturers have been inserting a false bottom in cartons or packing the stockings in single pairs in glace paper containers, but this left the stocking still to be mussed at the counter. By use of the finish referred to, it is stated, a 5-thread stocking is practically immune from rumpling and, for example, has the appearance of a 7-thread, although not loaded, in any sense, and still presenting the sheer appearance when in service.

What is Responsible for "Troubles" in Weaving Rayon?

A number of mills have found it difficult to secure satisfactory results in weaving Rayon.

Some give it up in disgust—claim that Rayon can never be taught "loom habits"—and the new fibre gets a black eye.

Others blame it on the loom equipment. They may or may not be right. It depends!

In spite of all this, other mills are weaving Rayon with great success. How is it done? The answer is to be found not in any one fact, but in a number. The proper grade of Rayon is selected—the proper method of sizing is used—and the proper loom equipment is employed, including Heddles, Frames and Reeds.

We make Harness and Reeds especially suited for Rayon weaving. We do not say that this equipment alone will bring success in weaving Rayon—but we are bold enough to say that the best results can not be secured unless this equipment IS used.

We will gladly send free samples at your request.

STEEL HEDDLE MFG. CO., 21st and Allegheny Ave., Phila., Pa.

NEW ENGLAND OFFICE:
44 Franklin St.,
Providence, R. I.

SOUTHERN OFFICE:
Steel Heddle Bldg.,
621-635 E. McBee Ave.,
Greenville, S. C.

FOREIGN OFFICES:
Hudders Field, Eng.
Shanghai, China

FLAT STEEL HEDDLES
AND UNIVERSAL FRAMES

The Cause and Cure of Picker Fires

BY F. J. HOXIE.

The pickers are the source of most of the fires in cotton mills. Such fires are so common that the cause given in insurance reports has become conventionalized into "Foreign Substance in the Stock," which is vague and meaningless, but the impression is that "foreign substance" is iron or stones, which, passing along with the cotton, makes sparks when it comes in contact with the rapidly revolving iron beaters. This can and does cause fires in excessively dry cotton. On the other hand, cotton which is excessively moist causes fires by winding tightly about shafts, and becoming ignited by friction against bearings. Therefore, the real cause of the fires is not the iron, but the abnormal dryness or moisture in the cotton.

Cotton with a normal moisture content of 8 per cent cannot be ignited by being placed in a shower of sparks from an emery wheel, unless held in this position long enough to be considerably dried by the warm air blast from the wheel. Normally dry cotton cannot be made to pack about bearings as can be done with cotton containing 10 per cent or more of moisture. When flint and steel were used for kindling fires, a tinder box containing carefully dried or charred tow was a necessary part of the apparatus.

Within the past 25 years 3,088 picker fires have been reported by the cotton mills insured by the Factory Mutual Companies. When these fires are plotted so as to show their distribution through the months of the year, the curves show a marked and an increasing tendency to fires when the air is dry in winter, or when moist new cotton is introduced in late autumn.

Doubtless much of the cotton is not in equilibrium with the atmospheric moisture at the time of year at which the fire occurs. Some of the cotton bales have been kept out of doors, as can be seen on a trip through the cotton growing country. Some of it has been kept in moist basements. Under either condition the cotton will have an excess of moisture. Some of it may have been kept in heated storehouses in the winter, and will therefore be excessively dry. Some of it may have just come from the field, and therefore contains an excess of natural moisture from the plant. These conditions are more variable than they were in the past, because, due to the high price of cotton, less of it is kept on hand by the mills. Some years ago many of the eastern mills got in their year's supply of cotton in the Fall and arranged to have on hand enough old cotton to run well into the Winter, so as to allow the new cotton to become dried out before putting it into the pickers. This was not primarily to avoid picker fires, but to get a more uniform product.

As there is no legal standard of moisture in raw cotton in this country, the dealer in cotton has every incentive to keep the cotton previous to delivery under such conditions that it will absorb the maximum of moisture. The moisture absorbed can vary from four to fourteen per cent under extreme conditions.

How much of an item the excess moisture in raw cotton is we have no means of knowing, and I think but few of the mills have any idea how many thousand dollars a year they are paying for excess moisture. In England there is a standard of moisture of 8 per cent of the weight of the cotton as received, that is 8½ per cent regain. In the United States there is no such standard, and rarely, if ever, is the amount of moisture which will be accepted mentioned in a contract for cotton; therefore, claim for excess moisture cannot be made until the cotton appears wet—that is, contains 15 per cent or more.

It is not difficult to estimate with commercial accuracy the moisture cotton contains by measuring the relative humidity of air with which it is at equilibrium. This can be done in case of considerable quantity of bales of cotton by placing a recording hygrometer in the room with it and keeping the room tightly closed over night. With smaller quantities the moisture can be determined in the opener room by taking a handful of cotton from the outside and inside of every bale and placing it in a box with a recording hygrometer, the dial of which can be marked in per cent of moisture instead of relative humidity, as one is directly dependent upon the other. The amount of moisture contained in cotton at different relative humidities can be obtained from Hartshorne's tables of moisture regain in cotton. It is, briefly, as follows:

40 per cent relative humidity— 5 per cent moisture
50 per cent relative humidity— 6 per cent moisture
60 per cent relative humidity— 7 per cent moisture
70 per cent relative humidity— 9 per cent moisture
80 per cent relative humidity—11 per cent moisture
90 per cent relative humidity—13 per cent moisture

When the recording hygrometer shows a reading of below 50 per cent, or above 70 per cent, the cotton may give trouble from fires, as well as bad work.

In case cotton which is excessively dry or moist must be put through the pickers, it can be moistened or dried back to the desired amount in the bales in the storehouse by placing humidifiers near the over-dry cotton, or placing that which is over-moist in a heater room with good ventilation. The condition of the cotton being observed from time to time by means of a recording hygrometer placed near it. The ventilation should be shut off over night when an observation is being made. The hair hygrometers used for this purpose should be checked by a sling hygrometer from time to time.

The J. B. Ford Company, Wyandotte, Michigan, have constructed a building 285 feet wide, 370 feet on its longest side, 73 feet high in front, and 84 feet high in the rear. This company, organized thirty years ago for the manufacture of commercial cleaning materials, has grown steadily. The original factory had space to load but three freight cars at a time, while in the present facilities, twenty cars may be loaded at one time without interfering with the local trucking business which is accommodated at four shipping entrances. The present factory contains storage tanks with a capacity of over 154 tons of raw materials. Wyandotte products are supplied through 2,500 selling agents, each carrying his own stock and having available factory storage stocks in over 300 cities in North America. Twenty companies operating in practically every civilized country of the world are supplying the products to export users.

A Special Setting of Half Laps That Will Not Flock

After much scientific study of half laps we have worked out a new setting that is positively guaranteed to prevent flocking; the needles themselves are made from certain alloys, which insure exceptional endurance and efficiency for the setting.

This scientific re-needling, supported by unexcelled service, is causing our list of customers to increase rapidly. Adopt the Blackstone Valley Special Setting and note the increased efficiency, regardless of make of half lap.

Write for price list and further information today.

Blackstone Valley Comb Works

New Bedford, Mass.

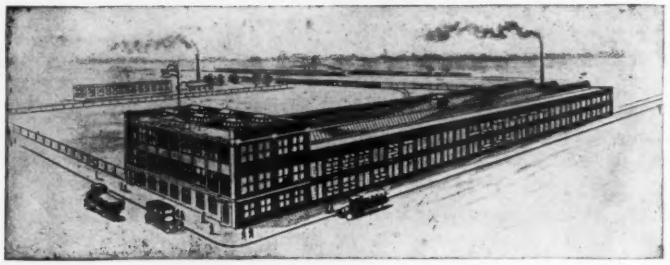
Southern Representative:
L. E. WOOTEN
519 Johnston Bldg.,
Charlotte, N. C.

Blackstone Valley
COMBER RE-NEEDLING
FOR ENGLISH - AMERICAN - FRENCH COMBS

WICACO

Stenton Avenue and Louden Street

Wayne Junction
P. & R. R. R.



Established 1868

59 Years of Continuous Production

SCREW & MACHINE WORKS, INC.

PHILADELPHIA

RAYON

Spinning Pumps
Spindles, Bushings, Gears and all Rayon Equipment

Consult our Engineers about your problems

An Important Point of Insurance Law

BY LESLIE CHILDS.

As a general rule of procedure, where an insurance company issues a policy covering cotton or other goods it requires to know the exact location of the goods covered. This is a reasonable request for information that the company has the right to have, and, if a policy is issued which clearly misstates the location of the property to be covered, it may have the effect of voiding the policy.

This point of insurance law is of great importance to cotton manufacturers, brokers and others who frequently carry large quantities of goods in warehouse storage, which of course is insured. It follows, that a brief review of a case illustrating the possible danger to an insured in failing to see that the exact location of property covered is given in any policies taken out, may prove of general interest. With this in mind, the recent Louisiana case of Hardin Bag Company Vs. Milwaukee Mechanics' Insurance Company, 107 So. 298, may be examined with profit.

Facts in the Case.

In this case the bag company owned 63,000 second-hand rice sacks which it intended to store in a certain warehouse in New Orleans. It of course desired insurance on the sacks, and called the Sinclair Agency for the purpose of arranging coverage.

The agency at once requested to know what division of the warehouse the sacks would be stored in, and advised the bag company that this information was necessary in writing the insurance. At that time the bag company did not know the division of the warehouse in which the sacks would be stored, but it got in touch with the warehouse later and was informed that the goods would be placed in division 3.

The bag company thereupon telephoned the insurance agency that the sacks would be stored in division 3 and the agency issued two policies of $5,000 each, in different companies, which stipulated that the sacks were covered while located in the "Appalachian warehouse, division No. 3, and not elsewhere."

The policies in question were mailed to the bag company, but it did not examine them until about one month later when a fire occurred in division No. 2 of the warehouse, which destroyed the sacks sought to be insured. It was then discovered that the sacks had been stored in division No. 2 instead of division No. 3, as provided for in the policies of insurance.

Insurance Companies Deny Liability.

On this state of facts, the insurance companies denied liability, and the bag company brought the instant action to have the policies reformed so that they would cover the loss regardless of where it occurred in the warehouse. This action was based on the contention that since it was the intention of the parties to insure the sacks while in the warehouse, the fact that the bag company made a mistake, in stating the division in which the sacks were stored, should not relieve the insurance companies of liability.

The trial of the case in the lower court, however, resulted in a judgment in favor of the insurance companies. The bag company prosecuted an appeal to the Supreme Court of Louisiana, and here in reviewing the record, relative to whether there had been a mistake, in naming the division in which the goods were to be stored, that would justify the reformation of the policies, the court, in part, said:

"Here, there was no meeting of minds to insure the goods wherever stored in the warehouse, without reference to divisions. The Sinclair Agency realized that it could not write such policies without violating instructions from the companies which it represented. As a matter of fact, the warehouse was subdvided into several divisions, each division being protected by fire walls against fire originating in an adjoining division. The risk in some of the divisions was greater than in others.

"The companies represented by the agency had instructed it not to write more than a fixed amount of insurance that would subject them to liability because of a single fire. It so happens that each of the defendants in this case had instructed the agency not to write over $5,000 on goods stored in any one of the divisions of the Appalachian warehouse, and that the agency had written already for each of defendants that amount on goods in division 2. * * *

"The entire trouble is due to the fact, in so far as the record discloses, that plaintiff (bag company) was misinformed by some one at the warehouse as to the place of storage and misinformed defendants' agent. It is obvious that defendants are not chargeable with this error, and that its commission cannot supply the consent necessary to the formation of the contract which plaintiff has sought to establish. The record discloses no ground for reformation."

Following the foregoing disposition of the bag company's contentions, the court in conclusion, among other things, said:

"As the goods were insured by defendants only while stored in the Appalachian warehouse, division 3, and as they were destroyed while stored in another division, there can be no recovery on the policies. * * * In fact, the policeis by their very terms insure the goods only while contained in the Appalachian warehouse, division 3, and not elsewhere, and hence, by their wording, clearly preclude recovery if destroyed while stored elsewhere. * * *"

In conclusion the court affirmed the judgment rendered by the lower court in favor of the insurance companies. Holding, as outlined in the opinion, that in view of the facts of record, and the wording of the insurance policies, the bag company could not recover on the policies for the loss suffered.

It is obvious that the foregoing case is one of great force and value on the question decided. And in view of its facts and holding it becomes a decision of importance to manufacturers, owners, jobbers, and others who by the very nature of their business carry insurance on large quantities of goods stored in warehouses. Truly the case is one well worth the having in mind, when insurance is being contracted for in situations similar to the one in the case reviewed.